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Practical Pharmacy Edition

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A MISTAKEN POLICY

IN A paper in the January issue Dr. Robert Elman of Washington University, a top authority on amino acids, said:

"Many preparations are available at the present time offering the advantages of amino acid mixtures for use as a substitute for whole protein food. The pharmacist is often at a loss to know whether these preparations can be used with benefit." After setting forth criteria for such products he stated: "Before accepting products for either oral or parenteral use the pharmacist should be certain that these requirements have been met. The pharmacist must insist upon maintaining nutritional standards for amino acid mixtures and protein hydrolysates just as he does for other preparations."

Sound advice. There are some who apparently do not think so. About the time this discussion appeared in the JOURNAL a pharmacist, in response to physicians' queries, requested professional data from a leading manufacturer of amino acid mixtures. Back came the reply: "Professional literature regarding this product is sent only to members of the medical profession."

Followed to its logical conclusion, such a policy could have only one result. The retail or hospital pharmacist would be relegated to the status of mere merchant. Or worse. Even the man in the marketplace has full knowledge of the merchandise he sells.

It has long been the contention of our profession, and a sound one, that therapeutic agents must not be handled like merchandise or by the untrained layman. State governments have recognized this basic public health requirement. They have restricted the compounding and dispensing of prescription drugs to the licensed pharmacist—the specialist in regard to properties, actions and preparation of therapeutic agents.

This responsibility of the pharmacist involves something more than receiving drugs at the back door of the pharmacy and sending them out the front door on a physician's prescription or verbal order. How will the pharmacist fill his role in modern medical care? In addition to his dispensing and compounding skill, he should be able to evaluate the multiplicity of drugs becoming available and, as Dr. Elman points out, insist on scientific standards. In one instance it may be amino acid mixtures; in another, penicillin products. The pharmacist should be ever ready to discuss with the physician the nuances between various drugs available.

For this task we need more information rather than less. We do not question the good intentions or standards of a firm—such as Mead Johnson and Co. in the instance of the amino acid inquiry—which refuses to supply the pharmacist with professional information concerning products. We do submit that such a policy is based on a false precept and does not encourage more scientific medical care.

We do not wish to encourage self medication, nor is this issue involved. Should an unethical pharmacist wish to counter-prescribe he will do so, with or without scientific data on the product. Indeed the entire development of pharmacy as a profession indicates that the more the pharmacist is educated to understand the exact nature and rationale of medications and their limitations, the less likely he is to encroach upon the specialized field of the physician.

The fully informed pharmacist has been increasingly helpful to the medical profession as a source of information regarding the increasingly complex field of pharmacy. This is particularly true at a time when rapid advances in diagnostic techniques and therapy provide a full-time medical job without the physician also trying to be a pharmacist.

The pharmaceutical manufacturer will be wise who recognizes this important service of the practicing pharmacist. An excellent example of awareness to today's trends is expressed in recent advertising of Abbott Laboratories:

"No busy physician can hope to gain, much less retain, a precise knowledge of the properties of each important new pharmaceutical specialty. He stands in need of a competent, informed, unbiased counselor. Why shouldn't he, then, turn to the pharmacist whose training and background equip him for this professional service? This is the new field of pharmacy. . . ."

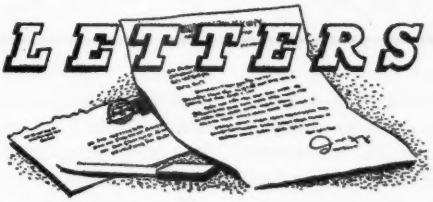
It comes down to this: Today's pharmacist must be more than a purveyor of drugs—if there is to be an important place for pharmacy tomorrow. Pharmacists should receive and also seek full professional information on proprietary products which cannot always be individually discussed and evaluated in reference books or journals. Manufacturers should be ready to supply such information to all legitimate professional inquiries. Retail and hospital pharmacists should object, individually and through their organizations, to any attempt wherever it may arise to restrict dissemination of scientific data.

GOVERNMENT PHARMACISTS DISBAND ASSOCIATION TO STRENGTHEN UNIFIED ACTION BY PROFESSION

Sirs:

The American Association of Government Pharmacists after much thought, study and deliberation decided to dissolve its membership.

Notice is hereby given to all concerned that due to duplication of effort, and to avoid conflict with other national and state pharmaceutical organizations, and not to create an impression that organized pharmacy is divided, he officers, committeemen and majority of members of the American Association of Government Pharmacists have decided to dissolve the organization at the earliest possible moment.



In taking such action the American Association of Government Pharmacists urgently requests each and every member to affiliate with or keep his or her dues paid with the AMERICAN PHARMACEUTICAL ASSOCIATION and the American Society of Hospital Pharmacists.

The above decision was arrived at after much correspondence and deliberation among the members of said association and it seems to be the opinion of most of the officers, committeemen and members that there is absolutely no need for a separate organization of government pharmacists due to the effort put forth by the AMERICAN PHARMACEUTICAL ASSOCIATION since Dr. Robert P. Fischelis has been acting as secretary of our parent organization of pharmacy.

H. C. PAINTER, *President* — ALBERT H. MOORE, *Secretary*

A. PH. A. "HELPED TREMENDOUSLY"

Sirs:

I have just received my 1946 membership card and certificate. I believe that by joining the ASSOCIATION, it has helped me tremendously in keeping up with the latest in pharmacy.

I was recently discharged from the service and am now employed as a civilian pharmacist at the port dispensary here. . . .

Fort Mason, Calif. — CLEMENT L. LEW

PHARMACISTS IN THE CANAL ZONE

Sirs:

This letter is to acknowledge receipt of information on the Civil Service status of pharmacy. Canal Zone pharmacists are not regular Civil Service employees but our salaries and qualifications are supposed to follow Civil Service regulations as closely as possible. We had noticed and discussed the low qualifications required of pharmacists in government service in the States and are pleased to hear that some action is being taken. I was quite impressed with your letter of November 30, 1945, to Mr. Harry B. Mitchell and will see that other members of the Canal Zone branch of the AMERICAN PHARMACEUTICAL ASSOCIATION receive an opportunity to read it.

We have been having very good attendance at our meetings this year. Except for one of our members who was on leave in the States, there was 100% attendance at our last meeting. Since we are scattered over a 50-mile territory we are quite proud of the attendance record.

Cristobal, Canal Zone — THOMAS E. CADY

COMMENT FROM 37-YEAR MEMBERS

Sirs:

Your letter notifying me of Life Membership [because of 37 years of continuous membership] marked a significant milestone in my career as a pharmacist, which began over a half century ago. The A. PH. A., as the guide and driving force of our profession, has marked many a great milestone of its own. I am therefore proud to say that for the past thirty-seven years I have taken part in an organized movement to promote the recognition of the importance of pharmacy to national welfare.

The struggle of the independent pharmacist for a place in the sun has been a long one. The banding together of these pharmacists by the A. PH. A. and state associations has provided a united front which every day brings us nearer to our goal. . . .

Los Angeles, Calif. — ORAZIO TOCCO

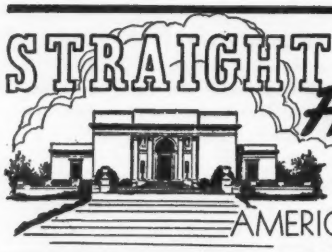
Sirs:

Thank you very much for the card entitling me to life membership in the AMERICAN PHARMACEUTICAL ASSOCIATION. It comes as a complete and pleasant surprise. It is hard for me to realize that I have been a member of the ASSOCIATION for thirty-seven years.

Your kind letter recalled old memories of pleasant hours with Remington and many, many more of the old guard. . . .

I have been and still am a member of a number of associations and scientific societies, but somehow I always liked the AMERICAN PHARMACEUTICAL ASSOCIATION the best. There is a friendly atmosphere which warms the heart and makes one realize at once that the AMERICAN PHARMACEUTICAL ASSOCIATION has a real soul.

Chicago, Illinois — FREDERIC FENGER



STRAIGHT FROM HEADQUARTERS

by ROBERT P. FISCHELIS, Secretary
AMERICAN PHARMACEUTICAL ASSOCIATION

WHAT does the average pharmacist know about the potentialities of his professional services to the community which he serves? According to views expressed by some members of the wholesale drug and manufacturing industry, the answer is: "Precious little." Perhaps they are right. If so, it is high time for the individual pharmacist to carry on a bit of research in his own behalf.

Some years ago pharmaceutical manufacturers and wholesale druggists were ignorant about a lot of things to which they are now alert and about which they have ascertained the facts. Experience enables men to make good guesses and to generalize on business and professional matters. But those who substitute research for guess work and rule of thumb have learned that many things they have known and were very dogmatic about just are not in accordance with the facts as revealed by systematic investigation.

No pharmacist can know accurately how much of certain drugs and chemicals his clientele actually requires over a period of a year unless he keeps purchase records. Few pharmacists are aware of the potential requirements of their communities with respect to health supplies because only a few have taken the trouble to apply available census figures to their own localities. Today it is important for pharmacists practicing in their own establishments and furnishing their own facilities to know how many families are their potential clients, the number of members in these families, the age distribution, the type of employment in which they are engaged, their earning capacity, the extent of their education and interest in community health, the extent of their civic-mindedness and how they spend their leisure.

Next to accumulating such facts oneself—which incidentally is good continuing education for any pharmacist—the best procedure is to use such facts as are made available by those who specialize in such research. Various organizations of economists, some organizations dealing with public relations, a number of drug manufacturers, wholesalers, and statistical organizations are now assembling such data and making it available to those engaged in retail distribution.

Pharmacists will do well to acquire the data produced by these organizations but interpretation of these data in terms of local communities is a matter for the individual pharmacy owner. Blanket statements and conclusions drawn for the United States as a whole may not apply to specific localities. There is still no good substitute for your own thinking.

Veterans' Affairs

At the time this is written a very intemperate attack has been made by the Commander of the American Legion on the Veterans' Administration, and particularly on Gen. Omar N. Bradley, its director. Our observation and fairly close contacts with the pharmaceutical aspects of the reorganization program of the Department of Medicine and Surgery of the Veterans' Administration indicate that Gen. Hawley, its chief medical officer, has had the unqualified backing of Gen. Bradley, and both have in mind only the highest quality of service, which includes pharmaceutical service. An excellent start was made in this direction when graduation from an approved four-year course in pharmacy became the minimum legal prerequisite for admission to positions as pharmacists in the Veterans' Administration. Furthermore, Gen. Bradley has cordially received representatives of the pharmaceutical profession and has accepted their offer of cooperation and support through the appointment of state committees of pharmacists who are expected to guide the placement of pharmacy veterans in satisfactory positions and in the purchase of pharmacies as well as in the proper utilization of educational facilities under the GI Bill of Rights.

To us the attack on Gen. Bradley and his Administration, after only six months of opportunity to bring order out of the chaos existing

when he took over the reins seems to be entirely out of order, especially in view of the terrific influx of new activity resulting from the rapid discharge of millions of soldiers.

The appointment of a highly competent chief pharmacist of the Veterans' Administration will assure the future development of this phase of the Administration's Department of Medicine and Surgery.

Army Pharmacy

By the time this issue of the JOURNAL appears in print decisions of considerable moment will have been made with respect to the future of pharmacy in the U. S. Army. The law creating the Pharmacy Corps unfortunately did not provide for anything more than the creation of a corps and the specification of the number of those who were to compose it. The law itself did not outline in detail the functions the corps was expected to carry on, nor did it provide for a director or other organizational factors.

This legislation became effective in the middle of 1943 when we were at war, when medical services of various kinds had been organized and channeled without reference to the establishment of a Pharmacy Corps. Accordingly, it was not difficult for the Medical Department of the Army to sidetrack effective organization and integration of this Corps and also to avoid the organization of a reserve which was authorized but not made compulsory.

Now that the war is over and Congress has authorized an increase in the number of commissioned officers in the Regular Army up to 25,000, Pharmacy Corps commissions are being offered to officers in the Sanitary Corps and in the Medical Administration Corps of the A. U. S. and the educational requirements for the Pharmacy Corps are being waived for these officers during the period of recruitment of regular army officers from the wartime Army of the U. S.

This is obnoxious to the pharmaceutical profession because the Pharmacy Corps was intended to be composed exclusively of pharmacists. It has been known for some time that the Surgeon General is anxious to organize all medical services other than medicine itself, dentistry, nursing and veterinary medicine, in a separate corps to be known as the Medical Service Corps. If authorized, this corps would absorb the Pharmacy Corps, and unless provisions are made for a distinctive pharmacy section in such corps headed by a chief pharmacist, pharmacy will again lose its identity as a separately functioning group within the medical department.

At this writing Congressman Durham, who sponsored the original act creating a Pharmacy Corps in the U. S. Army, and the committee of twelve representing the A. PH. A., A. A. C. P., N. A. B. P. and N. A. R. D. are endeavoring to determine the best procedure for maintaining the gains made with the establishment of the Pharmacy Corps. The situation will be discussed with the Surgeon General of the Army, and out of it all it is expected that a more satisfactory pharmaceutical service will result in the Army regardless of the organizational setup. However, American pharmacy gained something when the legislation establishing a separate Pharmacy Corps in the Regular Army was passed, and this gain must not be sacrificed for something less desirable.

COLLEGE ENROLLMENT WILL REACH NEW HIGH

THIS spring there will be at least a quarter million veterans in colleges and universities; by fall the number will be at least 600,000, according to the American Council on Education. Total enrollment in higher educational institutions is expected to be approximately 25% above the peak prewar year. Colleges of pharmacy are sharing in this sudden influx of students and its attendant problems.

One of the most serious problems has been the lack of housing for students, and particularly students with families. Plans for construction of laboratories or classrooms should be postponed except in unusual cases, the Council on Education suggests, so that scarce building materials can be used for housing.

Laboratories and classrooms should be used continuously for twelve or sixteen hours a day, the Council's bulletin states. Some institutions may arrange to use facilities of secondary schools when not in use by high-school students.

In connection with student enrollment, colleges are urged to keep a balance between their continuing student body graduating from high schools and the veterans so that neither will be served at the expense of the other.

ENZYME THEORY OF DRUG ACTION

by MELVIN W. GREEN

AMERICAN PHARMACEUTICAL ASSOCIATION LABORATORY

DRUGS MAY ACT BY INTERFERING WITH ENZYME CONTROLLED LIFE PROCESSES; NEW CONCEPT OPENS PROMISING AVENUE OF RESEARCH

AS MORE specific drugs became a part of the armamentarium of physicians it was natural that pharmacologists should attempt to explain the mechanism of drug action. Many theories have been developed, among the most noteworthy being the relationship between lipoid solubility and activity, the possibility of an interaction between the drug and "active patches" on the cell, the relationship between the ability of the drug to penetrate into the cell and its activity, and the ability of the drug to interfere with enzyme controlled metabolic processes and thus affect cellular metabolism. In many cases this latter mechanism has been well established and new modifications of the enzyme theory are being brought to light constantly.

Some pharmacists may believe this conception is too nebulous and theoretical to be of practical significance. But it must be remembered that it was the theoretical concept of Ehrlich that the azo dyes are supposedly highly antiseptic that led to the highly important discovery of the sulfonamides.

Most of the present interest in the enzyme theory of drug action dates from the discovery of Loewi in 1921 that stimulation of a parasympathetic nerve results in the liberation of acetylcholine which, when it comes in contact with the cells, produces the characteristic physiological response. It had been known for some time that physostigmine was parasympathomimetic† in nature, and shortly after Loewi's discovery it was demonstrated that this action is in reality due to an inhibition of cholinesterase, the enzyme responsible for the physiological hydrolysis of acetylcholine.

Since acetylcholine is an extremely active substance it is obvious that a more or less constant liberation of acetylcholine in the tissues would dam up until poisoning occurs. Nature has taken care of this contingency through the enzyme cholinesterase, which catalyzes the hydrolysis of acetylcholine into choline and acetic acid. Acetic acid in the concentrations produced is inert and choline possesses only about one-thousandth of the physiological activity of acetylcholine. For a more complete discussion of the mode of action of parasympathetic drugs, the reader is referred to THIS JOURNAL, 5: 286 (November), 1944.

It has been demonstrated also that drugs not administered specifically for their parasympathetic effects often elicit side-actions through such an enzyme mediation. For example, the Bernheims, Wright, and others have shown that morphine inhibits cholinesterase, a factor that probably accounts for the cardiac slowing and the respiratory depression of morphine. In fact it is not altogether unlikely that this enzyme inhibition may be responsible for the central stimulation.

For some time it has been known that when sympathetic nerves are stimulated, sympathin, a substance many people believe to be either epinephrine or a structural analogue, is liberated and affects the receptors in a manner analogous to acetylcholine. There is considerable evidence to show that cocaine, ephedrine, and certain sympathomimetic agents act by the inhibition of the enzymes destroying the sympathin and/or epinephrine. The pharmacological action of the sympathomimetic amines was most recently reviewed at the American Chemical Society Symposium in 1944 [*Ind. Eng. Chem., News Ed.*, 37: 116, 1945].

The spectacular advent of the sulfonamides caused considerable search for an enzymic mechanism to explain their action. Early attempts to tie the action of the sulfonamides to certain enzyme systems were more or less abortive until the finding of Woods that the action of these drugs could be inhibited by para-amino benzoic acid (PABA). This soon brought to light the activity of PABA as an important link in metabolic function within animal tissues as well as bacteria. This finding seems to carry with it the idea that the sulfonamides can compete with PABA for certain vital centers in an enzyme in

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Adapted from a paper published in the *Scientific Edition* of THIS JOURNAL, 35: 1, 1946.

† Parasympathomimetic action is one resembling a stimulation of parasympathetic nerves.

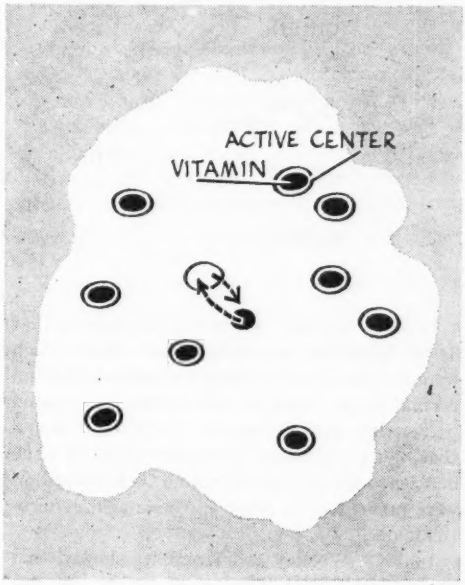
bacteria (possibly in other animal tissues too) and, indeed, may be the successful competitor. This competition is due to the structural similarity of the two compounds. But the similarity in action seems to end once the drug has successfully kept the PABA away from the enzyme center, for the sulfonamide is not capable of replacing the PABA in the metabolic events in which the latter participates. This may be considered analogous to a key which fits into a keyhole but cannot unlock the door.

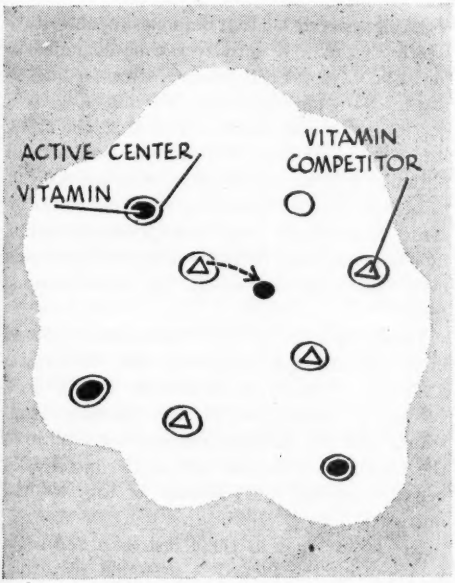
In an analogous manner, McIlwain found that pyridine-3-sulfonic acid could compete with nicotinic acid. Thus the stage was set for the possible production of vitamin deficiency in higher animals by the feeding of structural analogues of the vitamins.

In considering the action of vitamins, it must be remembered that most vitamins (particularly members of the B complex) are known to play a well-characterized role in cellular respiration. Several of these vitamins join with other compounds such as adenine, ribose and phosphate to form a coenzyme which in turn is attached to a specific protein to form an active biological catalyst. The vitamin portion of this giant molecule can undergo reversible oxidation and reduction by the gain and loss of hydrogen atoms. Thus it serves as a sort of "bucket brigade" to carry hydrogen atoms from one metabolite to another until ultimately the hydrogen is oxidized to water.

In several cases, outlined here, a chemical agent very similar to a given vitamin in structure is fed to experimental animals. The vitamin analogue is capable of going into the cell at the same point the vitamin enters, as shown in the diagrams below, but it is not capable of taking the place of the vitamin in respiration and as a consequence a deficiency results.

In 1943, Woolley and White produced an apparent thiamine deficiency in mice by feeding a pyridine analogue of thiamine, known as pyri-

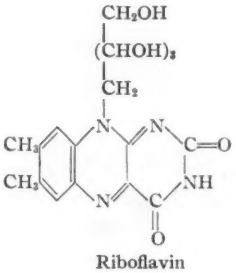




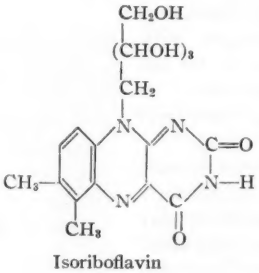
MODE OF ACTION OF VITAMIN INHIBITORS is illustrated by the schematic diagrams. In the cell above a vitamin is in contact with active centers (enzymes), where it performs its normal function in cellular respiration and metabolism. In the cell shown at the left some of the enzyme centers are taken up by molecules similar to the vitamin. No room is left for the vitamin and, since the "vitamin inhibitor" molecule cannot function as a vitamin, a deficiency results. This same principle applies to other essential metabolites.

thiamine. It was shown that 40 molecules of pyrithiamine nullified the action of 1 molecule of thiamine.

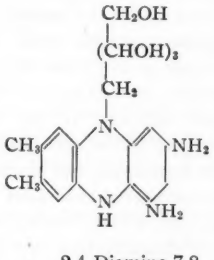
It has also been shown that the feeding of isoriboflavin can produce a riboflavin deficiency. Woolley found that 2,4-diamino-7,8-dimethyl-10-ribityl-5,10-dihydrophenazine could compete with riboflavin in certain microorganisms. The formulas, below, show the similarity of these compounds in structure.



Riboflavin



Isoriboflavin



2,4-Diamino-7,8-dimethyl-10-ribityl-5,10-dihydrophenazine

In 1938, Woolley and co-workers showed that 3-acetylpyridine promptly killed dogs which were nicotinic-acid deficient but had no effect on normal dogs. Mice do not ordinarily respond to nicotinic acid deficiency, yet Woolley found that 3-acetylpyridine produced signs of such deficiency when fed to mice, and these symptoms were prevented by either nicotinic acid or nicotinamide.

In 1943, Woolley and Krampitz showed that glucoascorbic acid, closely related to ascorbic acid (vitamin C), when added at the 5% to 10% level to the diets of mice, could produce scurvy in mice, animals which are not capable of becoming scorbutic on diets totally devoid of vitamin C.

In 1945, Dr. Woolley showed that α-tocopherol quinone has biological properties linked both to vitamin E and to vitamin K. The typical sign of vitamin E (tocopherol) deficiency is the death and resorption of the fetus (rats and mice) during the latter part of the period of gestation. Only a prolonged deficiency can produce muscular dystrophy and death. Woolley found that the administration of 100 mg. of α-tocopherol quinone, a compound closely related to vitamin E, brought about resorption of the fetus and hemorrhage, while comparable doses produced no effect in nonpregnant animals. No muscular dystrophy occurred and no permanent damage was done to the reproductive system.

In an attempt to find the cause of sweet clover disease in cattle, Link and co-workers found that dicoumarol [3,3′-methylene-bis-(4-hydroxycoumarin)], which could be isolated to the extent of about 60 mg. per Kg. of spoiled clover hay, was the active agent. Of particular interest here is the finding of Link that the feeding of vitamin K could overcome the anticoagulant properties of dicoumarol. Link found that any great change in the structure of dicoumarol brought about a marked change or even loss of activity, but significantly all compounds which were active could, at least theoretically, be degraded into salicylic acid. When salicylic acid itself was fed to rats on a diet low in vitamin K, Link found a hypoprothrombinemia similar to that produced by dicoumarol. It is significant that salicylates do not appear to affect the prothrombin activity of rabbits and dogs, species which are resistant to avitaminosis-K. Rapoport, Wing, and Guest showed that aspirin lowers the prothrombin content of human blood. To further cement this vitamin K-salicylate antagonism is the interesting observation that quinones capable of exhibiting vitamin K activity can be degraded to phthallic acid. Furthermore, after feeding 2-methyl-1,4-naphthoquinone (vitamin K_3) to a dog, phthallic acid was recovered from the urine. When one considers the structural similarity of phthallic acid to salicylic acid, it is not difficult to believe that salicylates (and dicoumarol) can cause hemorrhage from hypoprothrombinemia by competing with phthallic acid, formed during metabolisms of vitamin K, for some enzyme center.

These examples, and there are others recorded in the literature, serve to show that there exists a positive concept of deficiency disease (i.e. successful competition of an "inactive" substance with the essential nutrient for a place in the enzyme centers) as well as the historically negative concept (i.e., absence of the essential nutrient).

Researches such as these just discussed serve to point up the fact that profound metabolic

changes can be brought about by enzyme inhibitors and structural analogues of the essential metabolites. No doubt the number of such inhibitors is very large. It would be of interest to examine some of the more subtle effects of some of these substances.

While the production of a vitamin deficiency by positive means is dramatic, the production of a partial and localized deficiency might be of more practical application. The B vitamins, especially, have been linked closely with cellular respiration for well over a decade. The inhibitors of these vitamins, if fed at a lower dosage, might possibly bring about a localized vitamin deficiency, causing hyperactive tissues to operate at a lower energy level. If successfully worked out this could be very useful clinically in the treatment of certain diseases of the central nervous system.

Possible Use in Chemotherapy

Another possibility of the extension of this theory is in the field of chemotherapy. Knowing that certain drugs affect specific points in cellular metabolism, organic chemists no doubt will study systematically the effect of certain groups on these specific metabolic centers. It is known, for example, that certain cellular groups containing an —SH linkage, are highly vulnerable. A study of compounds which can react with an —SH group may disclose valuable therapeutic agents.

A precedent for such possibilities exists in pharmacology. There are many examples of series of drugs in which small chemical changes sufficiently alter such physical properties as solubility in water or lipoids, surface tension, diffusibility, polarity, dissociability, etc., so that a considerable measure of tissues and organ specificity exists. The sympathomimetic amines are good examples. The administration of these drugs simulates stimulation of the sympathetic nervous system, i.e., elevation of blood pressure, relaxation of bronchii, inhibition of gastrointestinal motility, and mydriasis. Yet certain of these amines can cause bronchial relaxation with a limited pressor activity; thus, at a given dose level, a measurable degree of tissue specificity exists. In this same manner, no doubt, a study of a series of vitamin inhibitors and essential metabolite inhibitors may disclose compounds of clinical value for their specificity in influencing metabolism both in human tissues and the bacterial cell. Certainly such recent work points out clearly the need for a more thorough study of the effect of drugs, both old and new, on enzyme-mediated metabolic processes.

For the reader who is interested in reviewing this theory in greater detail, he is referred to recent reviews by Welch [*Physiol. Rev.*, 25: 687, 1945] and by Woolley [*Science*, 100: 579, 1944].

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MONTANA BOARD TAKES CENSUS OF PHARMACEUTICAL PERSONNEL

Pharmacists in Montana, on the average, work 59.3 hours per week for a salary of $54.78, a census by the Montana State Board of Pharmacy reveals. The average retail pharmacy is open 72.5 hours per week.

Pharmacists who are college graduates outnumber nongraduates nearly 3 to 1 (487 compared with 171). Approximately 1 pharmacist out of 9 is a woman.

Pharmacists employed in various types of work were tabulated as follows:

Independent pharmacies	298
Chain drugstores	14
Hospital pharmacies	11
Salesmen	20
Laboratory technicians	2
Educators	2
Government service	6
Nonpharmaceutical work	45
Owner or partner	244
Managers	26
Clerks	129

The Montana census showed that 74 positions for pharmacists were available in the state. Data also revealed the composition of pharmaceutical personnel by age groups, type of registration and other factors.

RETAIL PHARMACY PURCHASED FOR OPERATIONAL EXPERIMENTS

A typical neighborhood pharmacy has been purchased for experimental purposes by Fair Trade Merchandising, a New York point-of-sale promotional organization. The pharmacy will be used to develop and test window and interior displays, acceptability of new products, departmentalization plans and to make studies on such problems as operational costs. Findings will be made available to retail pharmacists and manufacturers participating in the program.

CHEMICAL ABUSE OF THE HUMAN FOOT

"THE human foot has become the target of unbelievable chemical abuse," according to an article in the *Journal of the American Medical Association* (130: 249, 1946).

Four investigators—G. B. Underwood, M.D.; L. Edward Gaul, M.D.; Eileen Collins and Mabel Mosby, all of Evansville, Ind.—state that patients' feet today are "painted all the colors of the rainbow" or daubed thick with salves, powders and ointments.

The Journal article says that "the patients, when questioned about the number of remedies used, shrug their shoulders and exclaim 'I couldn't begin to recall. I've used everything. You are the sixth or seventh doctor I've seen. I've had this stuff between my toes for years. Just when I think it is well, it's back again. Each time it comes back I try something else. I've spent a small fortune for remedies, and look at my poor feet.' "

The authors say there is a preponderance of advertising urging patients to apply various remedies for inflammation of the feet, especially for "athlete's foot" which is caused by fungi. "Every channel of advertising implores the sufferers: to put your fungus to sleep; to stop fierce, torturing maddening itch; to relieve and quiet the burning; to sooth stinging; to heal ugly cracks and to allay suffering and pain."

The investigators report that they had studied the cases of 400 patients who had applied an assortment of remedies before their first visit to a physician. The average number of preparations used was four, but if the dermatitis or foot inflammation was recurrent the number would exceed 10 or sometimes 20.

"In this series," the authors say, "40% of the patients (160) showed positive reactions to one or more of the remedies used. . . . As the number of remedies applied increased, so did the incidence of positive reactions. Any patient who shopped long enough would sooner or later apply a salve, tincture, lotion or powder that would contain an irritant or sensitizer."

In 56 of the 160 patients the irritation was due to one of the organic mercurials. Merthiolate and phenol caused some reactions. In 69 cases, or 43%, tars and derivatives were the offenders.

The investigators suggest that all preparations containing mercury designed for skin application carry a "warning" on the label of the presence of a sensitizing agent. "The normal skin is apparently well equipped to withstand mercury contacts," the article says, but adds: "An injured skin or skin shorn of its protective layers, particularly a skin already inflamed by contactants, is favorable for mercury to induce sensitization."

The four writers point to the many preparations advertised in both medical and lay publications. All of the preparations are chemically different but each a specific for foot troubles.

"Pamphlets arrive also with quotations from eminent medical authorities who found this a specific or that a specific 'to eliminate fungous infection ringworms without irritation.' Furthermore, and herein lies the tragedy, it has spread into the American home. The daily, weekly and monthly periodicals display an urgent message how to diagnose, prevent and treat athlete's foot.

"Several decades ago the bowel was being symptomatically dosed. Each abdominal complaint had myriads of potions and concoctions all of which, if given a trial, would effect curative miracles. The bowel has had its therapeutic renaissance, but the skin, its symptoms and even its signs of disease are being symptomatically daubed and painted. A chemical and pharmacologic exposure of the oral cure-alls caused their mysterious and divinatory healing powers to vanish. Many were worthless, others actually or potentially dangerous. When the cutaneous oils, creams, salves, lotions, tinctures and powders are chemically and pharmacologically exposed, many of them will prove worthless. Many are already actually and potentially dangerous It took the tragedies from self-medication to end oral dosing; tragedies from self-treatment of skin diseases are mounting."

The article urges the Council on Pharmacy and Chemistry of the American Medical Association to " 'clean house' in the field of cutaneous drugs as it did with oral and parenteral drugs: tear apart the concoctions and define each cutaneous chemical in terms of dosage, indications and contraindications, and declare each therapeutic agent according to its chemical and pharmacologic properties."

MASSACHUSETTS VETERANS SERVICE

The Massachusetts College of Pharmacy's placement bureau has joined those providing employment aid to veterans by establishing a Veterans Service. Employers of pharmacists have been sent a questionnaire concerning the types of positions available and the qualifications required to fill them.

Motion Sickness

HYOSCINE BEST PREVENTIVE OF TRAVEL ILLS NOW KNOWN BUT ITS EFFECTIVENESS IS LIMITED

WARTIME research and experience in the prevention of motion sickness is stimulating renewed interest in this peculiar illness on the part of civilian physicians and pharmacists.

Although no dramatically effective preventive agent has emerged from recent experiments, it has been established that alkaloids of the belladonna group, and more especially hyoscine (scopolamine), are the best preventives now known. Many previously proposed theories and preventive measures for motion or travel sickness could not be substantiated; others were discarded as unsound.

Hyoscine alone, or in combination with atropine and/or a barbiturate, has been used to a limited extent by both the U. S. Army and Navy and by England and Canada. Under the auspices of the Office of Scientific Research and Development, tests of the efficacy of a number of agents have been carried out on approximately 14,000 troops during amphibious training operations. Each agent was tested against a placebo. Medication proved helpful under such noncombat conditions in reducing the incidence of motion sickness in trainees not yet habituated to air or ocean travel.

Motion sickness remedies undoubtedly will be prescribed more frequently as a result of wartime experience and of increased civilian travel of all types.

The prolonged motion of a plane, ship, car or train produces in susceptible passengers a familiar symptomatology: drowsiness, nausea, pallor, cold sweating and vomiting. There is wide variation in susceptibility among individuals and in susceptibility of the individual to different kinds of travel motion.

The physiology involved has not been clearly defined, since most experiments have been on an empirical basis. It is established that motion sickness primarily originates in the inner ear or vestibule. Structures of the inner ear give rise to nerve impulses concerned with equilibrations. The motion of travel results in exaggerated and unusual stimulation of this mechanism.

It has been demonstrated in dogs that removal of the labyrinth or removal of the vestibular portion of the cerebellum reduces the incidence of motion sickness. It has also been pointed out as possibly significant that nausea and vomiting accompany labyrinthine diseases.

In addition to the physical stimuli of motion, psychological and environmental factors are contributory. For example, unpleasant sights and smells tend to precipitate an attack of motion sickness.

Following an initial severe attack of airsickness or seasickness it has been observed that merely boarding a plane or ship again may produce nausea in some persons. This conditioned reflex often can be overcome by the temporary use of hyoscine until the individual has become habituated to motion. After several uneventful trips many persons no longer need rely on the aid of drugs.

It is commonly observed that most persons who become ill during initial travel experiences by plane or ship eventually become habituated to the motion and experience no unpleasant results.

Comdr. E. C. Hoff, (MC) U. S. N. R. of the Bureau of Medicine and Surgery, Navy Department, emphasizes that motion sickness remedies should not be resorted to habitually or routinely. Persons susceptible to motion sickness who must travel regularly should either become habituated to motion or obtain employment that does not require extensive traveling. The legitimate use of preventive agents lies in facilitating habituation to travel motion or in aiding the person who travels only occasionally.

Over the years, many drugs have been suggested for trial or use as motion sickness preventives. Those for which various investigators

could demonstrate no significant specific action in recent experiments are: ephedrine, amphetamine, thiamine, pyridoxine, chlorobutanol, pavatrine, prostigmine and certain barbiturates. Because of the difficulty of establishing scientific controls in tests of this sort, there is some difference of opinion concerning the relative effectiveness of various agents. It should be particularly mentioned that under certain conditions sedatives, such as the barbiturates, may be helpful.

Of many drugs tested, the related alkaloids hyoscine (scopolamine), hyoscyamine and atropine are generally considered most effective, although by no means universally reliable.

In controlled trials aboard ship, conducted on behalf of the British Medical Research Council [*Lancet*, Jan. 22, 1944, p. 127], hyoscine was judged to be most satisfactory of 13 drugs tested. By comparison with control groups, it was estimated that hyoscine, 0.6 mg., protected 50% to 75% of susceptible persons. Atropine and *l*-hyoscyamine appeared to be somewhat less effective but the difference was not considered significant statistically.

Other British workers [*Brit. Med. J.*, July 7, 1945, p. 6] conducted similar tests under tropical conditions and reported that hyoscine, 0.6 mg., protected about 70% of susceptible persons and was the best of the drugs tested.

A report on a controlled experiment in U. S. Naval aviation personnel [*J. Aviation Med.*, 16: 59, 1945] indicated that hyoscine hydrobromide, 0.6 mg., will prevent airsickness in a majority of susceptible persons. The incidence in 531 controls was 7.5%; the incidence in 200 airmen receiving hyoscine was 0.5%.

Experience by the armed forces confirms that the drug of choice is hyoscine, to which preventive effects have long been ascribed.

Hyoscine

Although hyoscine is the term used almost universally in the clinical and commercial literature, pharmacists should bear in mind that hyoscine is a synonym of and identical with scopolamine. The Pharmacopœial product is the hydrobromide of laevorotatory scopolamine obtained from plants of the Solanaceae. Tablets of scopolamine hydrobromide are official in the National Formulary.

The U. S. P. dosage is 0.5 mg. Slightly higher dosage, 0.6 mg. or 0.7 mg., is usually administered orally one-half to one hour before starting a trip. No unanimity of opinion exists regarding the duration of effect but it is apparently only a few hours. The dose should not be repeated except as advised by a physician.

Hyoscine must be dispensed only on prescription. The U. S. P. monograph carries the warning statement "Caution: Scopolamine Hydrobromide is extremely poisonous." Sollmann states that there are great individual variations in the response to scopolamine and, therefore, in its toxicity. The recommended dose lies much below the ordinary fatal dose but small doses (less than 0.75 mg.) have on occasion produced serious poisoning.

Recently published results of trials [*Lancet*, Jan. 22, 1944, p. 127 and *Brit. M. J.*, July 7, 1945, p. 6] and the experience of the U. S. Navy indicate that the side-effects of hyoscine in proper dosage do not constitute an important problem. Holling and his co-workers expressed the opinion that the drug in proper dosage is unlikely to have deleterious effects in normal individuals. In a dosage of 0.6 mg. mouth dryness was only just detectable and there was no effect on physical performance or near vision, according to Holling, *et al.*

Caution Required

However, the danger of overdosage and idiosyncrasies must be borne in mind. Physicians will no doubt be particularly hesitant to prescribe hyoscine for pilots or automobile drivers, since the sedative effect on the brain might produce drowsiness. Atropine differs in this respect, having a stimulating effect on the brain, but is said to have more pronounced side-effects of other types.

Hyoscine may be combined with atropine, hyoscyamine or barbiturates in motion sickness remedies. Such products are now on the market but there seems to be no evidence that their effectiveness is any greater than hyoscine (scopolamine) alone.

Hyoscine itself is effective, however, only in a certain percentage of cases. Results are inconsistent but a significant number of susceptible persons are protected, apparently not more than 50% to 70%.

The pharmacologic rationale of the use of hyoscine is based on anticholinergic activity and its central sedative effects. What the actual mode of action in motion sickness may be is not definitely known. Additional information is needed concerning the physiology and pharmacology of motion sickness and its prevention. Such data would be useful in developing a more reliable and specific preventive agent than any now available.

PROGRESS IN VITAMIN THERAPY*

by GEORGE R. COWGILL

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IT IS natural that we should usually find most interesting those developments which pertain to a *new* vitamin or hitherto unappreciated dietary essential. The history of our subject shows that each claim of discovery of a new vitamin has been the signal for immediate and intense research activity concerning it in many quarters. Such research has soon cleared the air, so to speak, marked out the general boundaries of the new field to be cultivated, and indicated what seemed to be the more profitable special lines of investigation to pursue further.

The current illustration of this situation is doubtless "folic acid," a factor present in the plant leaf—whence the name[1]—and found first of all to be essential for the growth of the microorganisms *Lactobacillus casei* and *Streptococcus faecalis R.* This interesting substance, for a long time known merely as something present in various vitamin extracts and concentrates, was finally isolated from liver and then synthesized by the organic chemist.[2]

The significance of this work will be more readily appreciated when it is realized that numerous investigators have observed anemia of one kind or another in different species of animals subsisting on special diets. As far back as 1932 Wills and Bilimoria,[3] in India, fed monkeys on a diet similar to that used by the natives and observed in the animals the development of an anemia, leucopenia and granulocytopenia; these symptoms were relieved by feeding a yeast extract. In this country in 1935, Day and associates[4] reported the production of leucopenia and anemia in young monkeys fed an artificial diet similar to one found useful for producing cataracts in rats; when the diet was supplemented with dried brewers' yeast, however, the deficiency syndrome was prevented and the monkeys exhibited good growth. Further work along this line, and negative tests with various known vitamins finally led Day and his co-workers[5] in 1938 to believe that the condition they were studying represented lack of an unknown factor for which they suggested as a provisional designation the name *vitamin M.*[6] In 1944, Hutchings and associates[7] reported the isolation in crystalline form of what they called "a new Lactobacillus casei factor." This was supplied to Day and co-workers with the result that, in January, 1945, there appeared a note by these investigators carrying the informative and interesting title "The Successful Treatment of Vitamin M Deficiency in the Monkey with Highly Purified Lactobacillus Casei Factor."[8]

On the basis of these studies in the monkey one would naturally be tempted to assume that this isolated and finally artificially synthesized *folic acid*, is indeed important for man, but experience has shown the wisdom of demanding suitable trials of it on the human species before accepting such an idea. Some tests of this sort have now been made. During November, 1945, two reports of such tests appeared in the public print.

Drs. Darby and Jones[9] at Vanderbilt University treated several cases of sprue with folic acid. It is well known that anemia is one feature of the clinical picture presented by cases of sprue. These sprue patients received "intramuscular injections of the newly developed synthetic vitamin which is identical with the folic acid present in liver and liver extracts. The patients showed immediate and marked improvement."

The second report, coming from Dr. Tom Spies and associates[10] at the University of Cincinnati and the Nutrition Clinic in Birmingham, Alabama, is particularly interesting because it deals with four anemia situations, namely the anemia of pregnancy, nutritional macrocytic anemia, Addisonian pernicious anemia, and the macrocytic anemia of pellagra. The phenomenon of reticulocytosis occurs as part of the remission of Addisonian anemia following the administration of therapeutically effective substances. Spies and associates report that the administration of the pure synthetic folic acid is followed by reticulocytosis. It would seem, therefore, that this new vitamin can truly be called an anti-anemia factor.

Evidently we are about to witness many important developments in the field of the anemias. It is not unlikely that some of the puzzles in this field will eventually be shown to be due to various complexes of interrelated dietary and physiologic factors. The discovery that a single pure substance like folic acid plays an important key role should make it easier now to elucidate these

* Adapted from an address presented at the Midyear Meeting of the American Pharmaceutical Manufacturers' Association at New York, 1945.

puzzling interrelationships in regard to anemias.

Another significant contribution to our knowledge of the relations of vitamins to blood abnormalities is seen in the recent report by Reid, Huffman and Duncan.[11] These workers at the Michigan State College have studied the therapeutic effect of yeast and pyridoxine (vitamin B_6) on poikilocytosis in dairy cattle.

"The work of several investigators has suggested a relationship of nutrition to the occurrence of poikilocytosis in animals. The study reported in this paper, the authors stated, "was initiated for the purpose of investigating the relationship of antianemia mineral mixtures, yeast, pyridoxine and nicotinic acid in the alleviation of the poikilocytic condition found to be prevalent in some dairy herds and produced experimentally in young calves by feeding semi-restricted rations. The results are of additional interest because of the absence in the literature of specific data on the production of poikilocytosis in dairy cattle."

Any contribution to our knowledge of the prevention and cure of poikilocytosis should be significant, because this condition has been reported in relation to scurvy and anemia studies in guinea pigs,[12] anemia in suckling pigs[13] in pigeons fed a vitamin B-complex deficient diet,[14] in anemic calves[15] and in cobalt-deficient calves.[16] Furthermore, as Reid and his associates[11] point out, "pernicious anemia is one of the diseases constantly associated with poikilocytosis."

These investigators found that young calves on semi-restricted rations and cows with large open fistules of the rumen were the dairy animals commonly affected with poikilocytosis: "Dry brewers' yeast, live yeast, or pyridoxine were effective therapeutic agents for the treatment of this condition, whereas the ingestion of nicotinic acid, riboflavin, or a mineral mixture containing iron, copper, cobalt and manganese did not elicit any curative effects on the disease."

Note that of the single pure substances tested only pyridoxine proved to be effective.

There are other indications in the literature that pyridoxine functions in some way in relation to the blood-forming organs. A severe microcytic hypochromic anemia in dogs fed artificial diets has been successfully treated with pyridoxine after failure of iron thereapy.[17,18] A relatively low level of supply of pyridoxine is required for growth as compared with the high level needed to protect pyridoxine-deficient dogs against the development of hypochromic microcytic anemia, according to McKibbin and coworkers.[19]

Vilter, Schiro and Spies[20] used this vitamin in the treatment of three pellagrins with macrocytic anemia and two patients with pernicious anemia with some subjective relief and a slight reticulocytic response.

Then there should be mentioned the studies of Wintrobe and co-workers[21] in which a severe anemia was produced in pigs by feeding a pyridoxine-deficient diet, and a rapid regeneration of blood accomplished by restoration of cells to normal size after pyridoxine had been administered. A recent contribution to this subject involving another species appeared in the November, 1945, issue of the *Journal of Nutrition*. Hegsted and Rao[22] of the Harvard Laboratories have been carrying out nutritional studies with the duck. Ducklings were placed on an artificial diet lacking pyridoxine. Failure of growth is the first symptom of pyridoxine deficiency noted in these birds. A severe microcytic anemia develops which responds promptly to the administration of the vitamin. A chronic deficiency picture was also produced in older ducks. The blood picture here was characterized by a drop in hemoglobin, red cell count and hematocrit. The response to pyridoxine was exceedingly prompt; an immediate growth response was also noted.

Time does not permit a more extended discussion of this interesting topic, but it does seem pertinent to mention that the literature also contains suggestions that certain essential amino acids may be of some importance in the functioning of the blood-forming organs; and the most recent work aimed at elucidating the role of pyridoxine in metabolism, illustrated in the report by Umbreit and Gunsalus,[23] contains the suggestion that "one of the functions of the vitamin B_6 group is as the general coenzyme of amino acid decarboxylases." Perhaps further studies will reveal that both this amino acid literature and the pyridoxine literature bearing on the anemia problem are definitely related and easily explained.

A recent significant development worthy of comment here relates to the old question of the role, if any, of a corn diet in the production of pellagra. The history of the incidence of this disease strongly suggests that people who use corn as the staple cereal are in some mysterious way rendered more liable to develop pellagra. Goldberger long ago believed that canine black tongue is the analogue of human pellagra. Studies of this canine disease thus constituted an important experimental approach to solution of the pellagra problem. It was this approach that finally gave us the discovery of nicotinic acid as the so-called antipellagra factor that Goldberger was looking for. In spite of this discovery,

however, certain facts remained more or less unexplained. Milk has long been known to be a valuable food for pellagrins, yet the amount of nicotinic acid in this food turns out to be quite small. During 1945 Briggs and associates[24] reported observations on 2 human subjects who had previously suffered from pellagra. They were hospitalized and fed a low-corn, low-nicotinic acid diet for nine and forty-two weeks, respectively. The diet provided only about 3 mg. of nicotinic acid daily; from 10 to 18 mg. have been suggested as a daily "requirement." "Each had minimal lesions of nicotinic acid deficiency at the start, but in neither was there any significant development in the direction of pellagra." This seems remarkable, especially when pellagra did not develop in these two subjects even after exposing them to ultraviolet light.

The authors make the interesting comment that "possibly we have observed all which should have been expected on a corn poor diet. It is conceivable, of course, that something in corn might inhibit the intestinal biosynthesis of nicotinic acid."

Some light on this possibility was shed during 1945 through the work of Krehl and associates at the University of Wisconsin. In their first paper[25] they report interesting experiments on growing rats. By using a synthetic ration adequate with respect to all known fat and water soluble vitamins except folic acid and para-aminobenzoic, these workers were able to produce a pronounced retardation of growth in the rat merely by adding 40% yellow corn, white corn or corn grits at the expense of the entire ration. It was found that the addition of nicotinic acid at levels of 0.5 to 1 mg. per 100 Gm. of the corn-supplemented ration completely counteracts the growth-depressing action of the corn. Furthermore, the kind of carbohydrate and the level of casein were found to modify the extent of the undesirable effect of the corn; but in all cases, nevertheless, the addition of nicotinic acid resulted in stimulation of growth. The favorable effect of increasing the level of casein in the diet was duly investigated and reported on in a later communication.[26]

It appears that a supply of either 50 mg. of l(-)tryptophane or 1 mg. of nicotinic acid per 100 Gm. of ration was able to counteract completely the growth retardation caused by the inclusion of 40% corn grits in a low-protein ration. The authors very properly commented that "although the efficacy of feeding either nicotinic acid or trytophane is obvious, the mechanism of their apparent interchangeability remains obscure." They suggest that the explanation lies, in part at least, in extensive changes which occur in the intestinal flora.

Some idea of the extent of this effect can be gained from the experiments which these investigators carried out on growing dogs[27]. The summary of that report deserves quoting here:

"When unenriched corn grits are incorporated in a synthetic ration to the extent of 60% of the sucrose, the nicotinic acid requirement of the dog is markedly increased and good growth does not result until the nicotinic acid content of the corn grits is increased to about 5.0% (more than 5 times the unenriched level) which furnishes the dog with about 3 times as much nicotinic acid as is required for comparable or better growth on a synthetic or whole milk ration."

Such findings have some rather obvious bearing on at least two questions: (1) the question of the enrichment of corn grits with nicotinic acid as a public health measure for combatting pellagra; and (2) the question as to what can be taken as an appropriate standard of nicotinic acid requirement for man—one figure for corn-eating people, another figure for wheat-eaters, and perhaps still another for certain other groups of people (?).

These indications of an important relationship between the vitamin nicotinic acid, and the essential amino acid tryptophane, receives further support from the work of Wintrobe and associates[28] with pigs. Young pigs fed a high-protein diet supplemented with thiamine, riboflavin, pyridoxine, choline and pantothenic acid, and not furnished with nicotinic acid, showed no signs of nutritional deficiency except for a slightly less satisfactory growth in certain instances. When the protein content of the diet was low (10% casein), the omission of nicotinic acid from the diet was associated with various signs of malnutrition, and only in these last-mentioned pigs was there a marked and consistent reduction in the urinary excretion of nicotinic acid derivatives. Evidently there is a close relationship between the protein intake of the pig and the animal's requirement for nicotinic acid.

How best to feed the human infant is one of the important problems in pediatrics. The advantages of breast feeding over the feeding of formulas based on cow's milk are well known, but until recently we have not had as much information as we should like concerning the vitamin contents of human milk upon which to base the desired modification of cow's milk. Extensive vitamin analyses of human milk have now been made by the Research Laboratories of the Children's Fund of Michigan,[29] and the data compared with those pertaining to cow's milk.

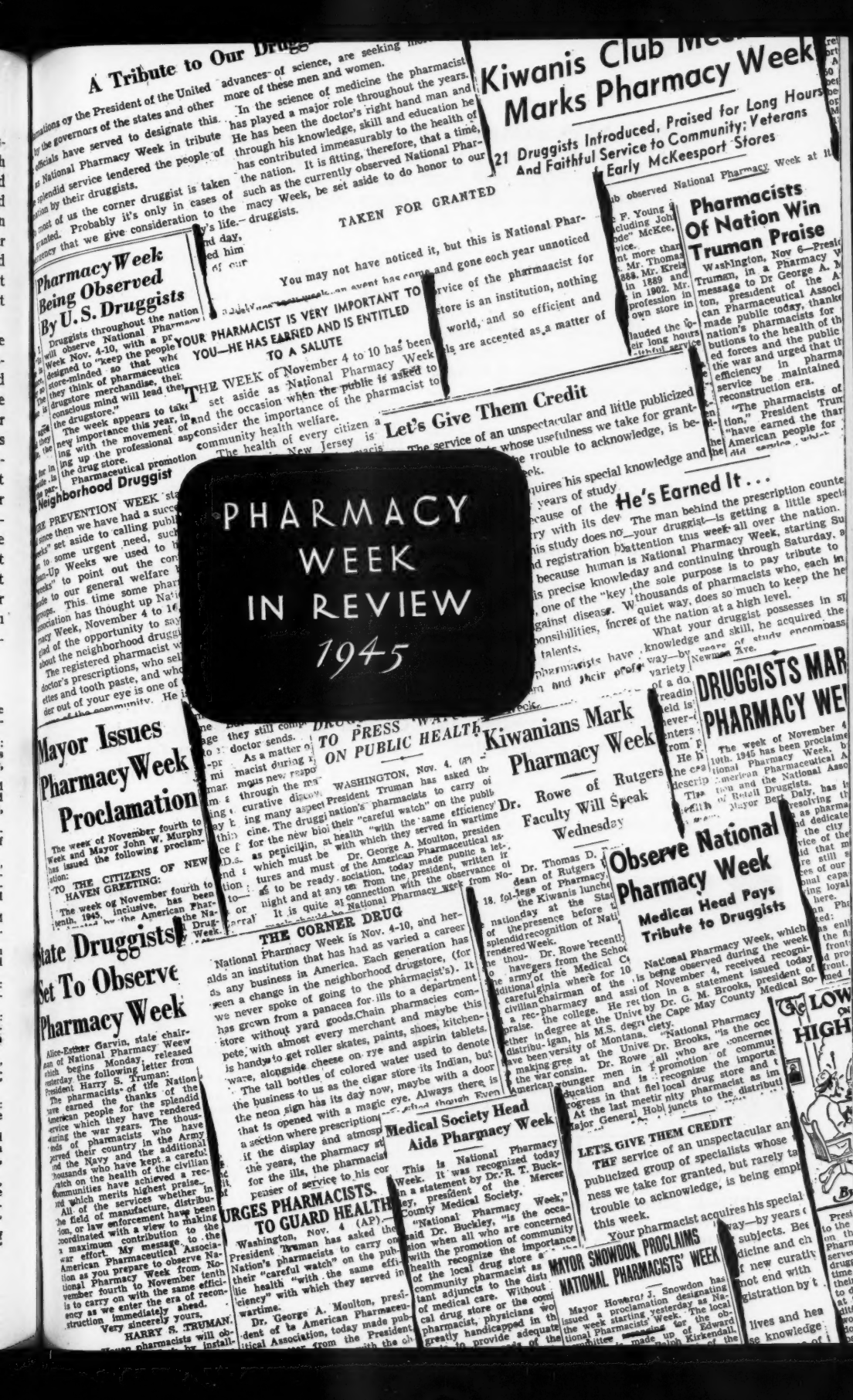
Human milk exceeds cow's milk in content of vitamins A, C, niacin, inositol and folic acid; it falls below cow's milk with respect to thiamine, riboflavin, pantothenic acid, pyridoxine and biotin. Other studies made by Dr. Macy-Hoobler and associates have yielded data on breast milk actually consumed by nursing infants. It will now be possible to know how much of each of the vitamins just mentioned really was obtained by the infants that were studied. These investigations therefore have obvious and far-reaching implications important for pediatrics, vitamin therapy, and activities of the food and pharmaceutical industry aimed at the development of new and specially fortified milks of one kind or another.

Time will permit me only to mention some other interesting developments concerning the vitamins. Physicians frequently encounter cases of vitamin deficiency that do not respond to the usual therapeutic doses found effective with most patients. The complete explanation of this phenomenon is not at hand. However, we do know now of the existence of many substances that inhibit or even destroy certain of the vitamins. It does not seem unreasonable to suggest that some substances of this type may exist in the organism, and in certain individuals be present and active to an unusually high degree; such individuals would then find even the so-called good diet unsatisfactory for their health and would require considerably more of the given vitamin when receiving therapy than most other patients. Further research in this field should therefore be pursued because of the important implications inherent in any of the data that would be obtained.

Another phase of our topic that can only be dealt with in passing, so to speak, concerns possible interrelationships between vitamins and hormones. One example of the possibilities here must suffice. During the current year Gaebler and Ciszewski[30] reported interesting observations made of the diabetes that occurs in depancreatized dogs. Some very positive effects of yeast on such dogs were described; and, except for the effect on glycosuria, these could be duplicated by a mixture of 7 of the B vitamins; there was a suggestion that inositol is one of the yeast components effective against the glycosuria. It is evident that we have here another field for fruitful study of the vitamins, the cultivation of which should yield results valuable to medicine.

REFERENCES

1. Mitchell, H. H., Snell, E. E., and Williams, R. J.: "The Concentration of Folic Acid," *J. Am. Chem. Soc.*, **63**, 2284 (1941).
2. Angier, R. B. (and 15 other workers): "Synthesis of a Compound Identical with the *L. Casei* Factor Isolated from Liver," *Science*, **102**, 227–228, Aug. 31 (1945).
3. Wills, L., and Bilimoria, H. S.: "Studies in Pernicious Anemia of Pregnancy. V. Production of a Macrocytic Anemia in Monkeys by Deficient Feeding," *Indian J. Med. Research*, **20**, 391 (1932).
4. Day, P. L., Langston, W. C., and Shukers, C. F.: "Leukopenia and Anemia in the Monkey Resulting from Vitamin Deficiency," *J. Nutrition*, **9**, 637–644, May (1935).
5. Langston, W. C., Darby, W. J., Shukers, C. F., and Day, P. L.: "Nutritional Cytopenia (Vitamin M Deficiency) in the Monkey, *J. Exp. Med.*, **68**, 923–940 (1938).
6. For a review of the literature on vitamin M see Day, P. L.: "Vitamins and Hormones," New York, **2**, 71(1944).
7. Hutchings, B. L., Stokstad, E. L. R., Bohonos, N., and Slobodkin, N. H.: "Isolation of a New *Lactobacillus Casei* Factor," *Science*, **99**, 371 (1944).
8. Day, P. L., Mims, V., Totter, J. R., Stokstad, R., Hutchings, B. L., and Sloane, N. H.: "The Successful Treatment of Vitamin M Deficiency in the Monkey with Highly Purified *Lactobacillus Casei* Factor," *J. Biol. Chem.*, **157**, 423–424, January (1945).
9. Darby, William J., and Jones, Edgar: Associated Press, November 21, 1945.
10. Spies, T. D., Vilter, C. F., Koch, Mary B., and Caldwell, Margaret H.: "Observations of the Anti-Anemic Properties of Synthetic Folic Acid," *Southern Med. J.*, **38**, 707–709, Nov. 1945.
11. Reid, J. T., Huffman, C. F., and Duncan, C. W.: "The Therapeutic Effect of Yeast and Pyridoxine on Poikilocytosis in Dairy Cattle," *J. Nutrition*, **30**, December (1945).
12. Hanke, M. T., and Koessler, K. K.: "The Effect of Scurvy-Producing Diets and Tyramine on the Blood of Guinea Pigs," *J. Biol. Chem.*, **80**, 499 (1928).
13. Kernkamp, H. C. H.: "The Blood Picture of Pigs Kept under Conditions Favorable to the Production and to the Prevention of So-Called 'Anemia of Suckling Pigs,'" *Minn. Agr. Exp. Sta., Tech. Bull.*, No. 87, 1932.
14. Hogan, A. G., Richardson, L. R., Johnson, P. E., and Nisbet, R. N.: "Pigeon Anemia as a Deficiency Disease," *J. Nutrition*, **20**, 203 (1940).
15. Knoop, C. E., Krauss, W. E., and Washburn, R. G.: "The Development of Nutritional Anemia in Dairy Calves," *J. Dairy Sci.*, **18**, 337 (1935).
16. Neal, W. M., and Ahmann, C. F.: "The Essentiality of Cobalt in Bovine Nutrition," *ibid.*, **20**, 741 (1937).
17. Fouts, P. J., Helmer, O. M., Lepkovsky, S., and Jukes, T. H.: "Production of Microcytic Hypochromic Anemia in Puppies on Synthetic Diet Deficient in Rat Anti-Dermatitis Factor (B_6)," *J. Nutrition*, **16**, 197(1938).
18. Fouts, P. J., Helmer, O. M., and Lepkovsky, S.: "Nutritional Microcytic Hypochromic Anemia in Dogs Cured with Crystalline Factor. I.," *Am. J. Med. Sci.*, **199**, 163 (1940).
19. McKibbin, J. M., Madden, R. J., Black, S., and Elvehjem, C. A.: "The Importance of Vitamin B_6 and Factor W in the Nutrition of Dogs," *Am. J. Physiol.*, **128**, 102 (1939).
20. Vilter, R. W., Schiro, H. S., and Spies, T. D.: "Effects of Synthetic Vitamin B_6 on the Hempoietic System of Human Beings," *Nature*, **145**, 388 (1940).
21. Wintrobe, M. M., Follis, R. H., Miller, M. H., Stein, H. J., Alcayaga, R., Humphreys, S., Suksta, A., and Cartwright, C. E.: "Pyridoxine Deficiency in Swine with Particular Reference to Anemia, Epileptiform Convulsions and Fatty Liver," *Bull. Johns Hopkins Hosp.*, **72**, 1 (1943).
22. Hegsted, D. M., and Rao, M. N.: "Nutritional Studies with the Duck. II. Pyridoxine Deficiency," *J. Nutrition*, **30**, 367, Nov. (1945).
23. Umbreit, W. W., and Gunsalus, I. C.: "The Function of Pyridoxine Derivatives: Arginine and Glutamic Acid Decarboxylases," *J. Biol. Chem.*, **159**, 333, July (1945).
24. Briggs, A. P., Singal, S. A., and Sydenstricker, V. P.: "A Study of Nicotinic Acid Restriction in Man," *J. Nutrition*, **29**, 331, May (1945).
25. Krehl, W. A., Teply, L. J., and Elvehjem, C. A.: "Corn as an Etiological Factor in the Production of a Nicotinic Acid Deficiency in the Rat," *Science*, **101**, 283, March 16 (1945).
26. Krehl, W. A., Teply, L. J., Sarma, P. S., and Elvehjem, C. A.: "Growth-Retarding Effect of Corn in Nicotinic Acid-Low Rations and Its Counteraction by Tryptophane," *ibid.*, **101**, 489, May 11 (1945).
27. Krehl, W. A., Teply, L. J., and Elvehjem, C. A.: "Effect of Corn Grits on Nicotinic Acid Requirements of the Dog," *Proc. Soc. Exptl. Biol. Med.*, **58**, 334, April (1945).
28. Wintrobe, M. M., Stein, H. J., Follis, R. H., Jr., and Humphreys, S.: "Nicotinic Acid and the Level of Protein Intake in the Nutrition of the Pig." *J. Nutrition*, **30**, December (1945).
29. Lawrence, J. M., Herrington, B. L., and Maynard, L. A.: "Human Milk Studies. XXVII. Comparative Values of Cow and Human Milks in Infant Feeding," *Am. J. Dis. Child.*, **70**, 193, Sept. (1945). Papers XIX to XXVI, inclusive, of this series also appear in this issue.
30. Gaebler, O. H., and Ciszewski, W. E.: "Effects of Yeast or Water Soluble Vitamins in Experimental Diabetes," *Endocrinology*, **36**, 227, March (1945).


A Tribute to Our Drugg
Kiwanis Club Me
Marks Pharmacy Week
21 Druggists Introduced, Praised for Long Hours
And Faithful Service to Community; Veterans
Early McKeesport Stores
Pharmacy Week
Being Observed
By U. S. Druggists
Pharmacists
Of Nation Win
Truman Praise
PHARMACY
WEEK
IN REVIEW
1945
Let's Give Them Credit
He's Earned It . . .
Mayor Issues
Pharmacy Week
Proclamation
DRUGGISTS MAR
PHARMACY WE
Kiwanians Mark
Pharmacy Week
Observe National
Pharmacy Week
Medical Head Pays
Tribute to Druggists
State Druggists
Set To Observe
Pharmacy Week
THE CORNER DRUG
TAKEN FOR GRANTED
YOUR PHARMACIST IS VERY IMPORTANT TO
YOU—HE HAS EARNED AND IS ENTITLED
TO A SALUTE
Medical Society Head
Aids Pharmacy Week
LETS GIVE THEM CREDIT
MAYOR SNOWDON PROCLAIMS
NATIONAL PHARMACISTS' WEEK

EXPANDED PROGRAM FOR 1946 PHARMACY WEEK ANNOUNCED AS JUDGING OF WINDOW DISPLAY ENTRIES ENDS PAST YEAR'S ACTIVITIES; WEBER AND JUDD AND MASSACHUSETTS COLLEGE AGAIN TAKE TOP HONORS; PARTICIPATION CALLED BEST YET

AS THE Pharmacy Week Committee begins work on plans for an expanded 1946 program, the past year's activities come to a close with judging of the window display contest.

The Weber and Judd Company, retail pharmacists of Rochester, Minn., and the Massachusetts College of Pharmacy took top honors in the retail and college divisions, respectively. Weber and Judd will receive the Robert J. Ruth Trophy, donated each year by the Federal Wholesale Druggists' Association. The Massachusetts College will receive the cup awarded by the AMERICAN PHARMACEUTICAL ASSOCIATION. Both winners were thus honored for the second consecutive year.

Retail pharmacists receiving certificates of merit are:

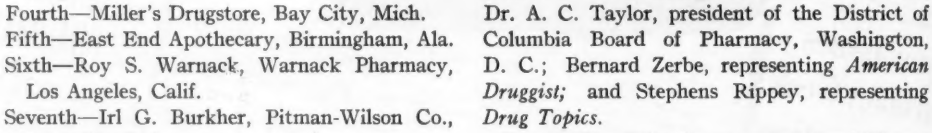
First—Samuel F. Higger, Washington, D. C.
Second—C. W. Schmidt, Archer Prescription Shop, Wichita, Kan.
Third—Hoagland's Drugstore, New Brunswick, N. J.
Fourth—Miller's Drugstore, Bay City, Mich.
Fifth—East End Apothecary, Birmingham, Ala.
Sixth—Roy S. Warnack, Warnack Pharmacy, Los Angeles, Calif.
Seventh—Irl G. Burkher, Pitman-Wilson Co., Rushville, Ind.
Eighth—Neale's Drugstore, Elkins, W. Va.
Ninth—Ralph E. Ladd, Prescription Pharmacy, Rockford, Ill.
Tenth—Mrs. Milton J. DeRouen, New Orleans, La.

First honorable mention in the college competition was awarded to the Drake University College of Pharmacy, Des Moines, Ia., with second honorable mention going to the Philadelphia College of Pharmacy and Science, Philadelphia.

Those taking honors in the final judging were selected from entries from 20 states, representing winners of contests conducted at the state level. Thirteen institutions competed in the pharmacy college division, the National Pharmacy Week Chairman, Charles R. Bohrer, announced.

Window displays were judged by a special committee, appointed by the Pharmacy Week Committee, composed of George H. Frates of the National Association of Retail Druggists, Washington, D. C.; Frank L. Black of Hynson, Westcott and Dunning, Inc., Baltimore, Md.; Dr. A. C. Taylor, president of the District of Columbia Board of Pharmacy, Washington, D. C.; Bernard Zerbe, representing *American Druggist;* and Stephens Rippey, representing *Drug Topics.*

In reviewing 1945 Pharmacy Week, which was jointly supported by A. PH. A. and N. A. R. D.,



UNUSUAL pictorial treatment of a familiar scene makes the photograph above a good example of public relations material for Pharmacy Week. Operations involved in compounding a prescription were traced by a light in the hands of the pharmacist. This photograph from the Gallagher Drug Co., Dayton, O., was given prominent newspaper position.

JUDGING THE PHARMACY WEEK DISPLAY CONTEST at A. Ph. A. headquarters on January 24 were (l. to r.) Bernard Zerbe of American Druggist; Dr. A. C. Taylor, president of the District of Columbia Board of Pharmacy; Stephens Rippey of Drug Topics; Frank L. Black of Hynson, Westcott and Dunning; and George H. Frates of the National Association of Retail Druggists. The special committee was appointed by Charles R. Bohrer, Pharmacy Week chairman.

the Pharmacy Week Committee noted increased participation through the press, radio, public addresses and, most important, through individual retail pharmacies.

Pharmacists throughout the country installed special displays, although a great many displays were not photographed for entry in the contest. Exhibits were installed in colleges, libraries and public buildings. To aid pharmacists in display work the Committee supplied 35,000 Pharmacy Week posters without charge, primarily through state associations. Forty-one state associations agreed to distribute the posters to their members.

Hundreds of newspapers carried the story of pharmacy's professional service, both in news columns and editorial pages. Releases were distributed by both the A. PH. A. Committee on Public Relations and by state and local groups. In addition, President Truman's Pharmacy Week message to the AMERICAN PHARMACEUTICAL ASSOCIATION was distributed nationally on the wires of the Associated Press. Advertising services to newspapers supplied special copy for use by pharmacists.

A representative selection of news and editorial comment published during Pharmacy Week is reproduced on pages 115 and 122.

To publicize by radio the role of pharmacy in medical care, a suitable script had been distributed by the A. PH. A. Committee on Radio Publicity to all state associations and colleges and about 50 additional copies were supplied to radio stations and pharmaceutical groups just prior to Pharmacy Week. A series of radio spot announcements was also widely distributed The A. PH. A. president, Dr. George A. Moulton, gave two broadcasts from Washington—one directed to the nation's capital itself over an NBC station, and another over eastern U. S. stations of the Mutual Broadcasting System.

Hundreds of Pharmacy Week articles and other material for public addresses before civic and church groups were supplied from Pharmacy Week headquarters on request.

College participation was particularly effective when tied in with "open house" programs, during which pharmaceutical techniques were demonstrated and explained to the public.

Here are some of the projects highlighted in reports from various groups to the Pharmacy Week Committee:

The most comprehensive report submitted, and one which indicated an extensive and successful program, came from the *Dayton (O.) Druggists' Association*, where Nathan A. Simpson served as local Pharmacy Week chairman. Main event of the week was a program, staged in a public auditorium, which merged entertainment with material designed to give the public information about pharmacy. Radio stations

and the press both cooperated fully. Feature stories and photographs appeared in Sunday papers, and news stories and discussions by columnists appeared during the week.

In *Indiana* 124 pledges to install special displays were received by State Chairman Ira V. Rothrock. Winners of the independent and chain drugstore divisions of the state contest were awarded $50 Victory Bonds. The Hook Drug Co. installed Pharmacy Week windows in nearly all of its 53 pharmacies. Irl G. Burkher, whose display later won seventh honorable mention in the national contest, spoke at the local high school.

The *Michigan* association received three times as many Pharmacy Week windows for judging as in 1944. The Kent County Retail Druggists' Association and Detroit Retail Druggists' Association backed state endeavors with active programs.

The *New Jersey Pharmaceutical Association* increased participation by preparing a program for the guidance of its affiliated county associations. Cooperation of the president of the state medical society and of each county medical society was secured to issue a public Pharmacy Week statement which was published in all leading daily newspapers of the state.

Twice as many display entries were received as in 1944. Camden County and Mercer County associations were particularly active, with 40% and 70% of their member pharmacies, respectively, entering displays in the contest. At least five radio programs were broadcast, and spot announcements were carried by most New Jersey stations. Pharmacy Week releases were mailed to 400 newspapers, with the *Trenton Times* receiving special mention for publishing pharmacy articles each day during Pharmacy Week and on three days the preceding week. Various local associations sponsored special newspaper advertisements. Pharmacy Week addresses were given before at least five civic clubs. David I. Cohen, chairman of the New Jersey Pharmacy Week Committee, reports that there was wider participation than ever before.

In *Alabama* daily Pharmacy Week announcements went out from 13 radio stations. Special programs were presented in every district at civic clubs and schools.

The *Northern Ohio Retail Druggists' Association* arranged three programs over local radio stations. A new twist to interprofessional publicity was given by the Northern Ohio group through a Pharmacy Week issue of *Cleveland VD Information*, a publication of the Academy of Medicine and Cleveland Health Council, which was primarily devoted to local pharmacy cooperation in the venereal disease control program.

Kansas reported unusual Pharmacy Week activity in the field of addresses by pharmacists before civic clubs. In *Iowa* news stories in local papers were particularly successful, stimulated by model stories mailed to pharmacists from the state association. *Oklahoma* reported an especially successful radio broadcast, prepared by Prof. Ralph Bienfang with the cooperation of the Fine Arts Department of the University of Oklahoma.

In *Delaware* there was good participation through special window displays and cooperative advertising in newspapers. The *University of Toledo College of Pharmacy* and *St. John's University College of Pharmacy* reported successful "open house" events. *Nebraska* and *Mississippi* were also among those reporting good response.

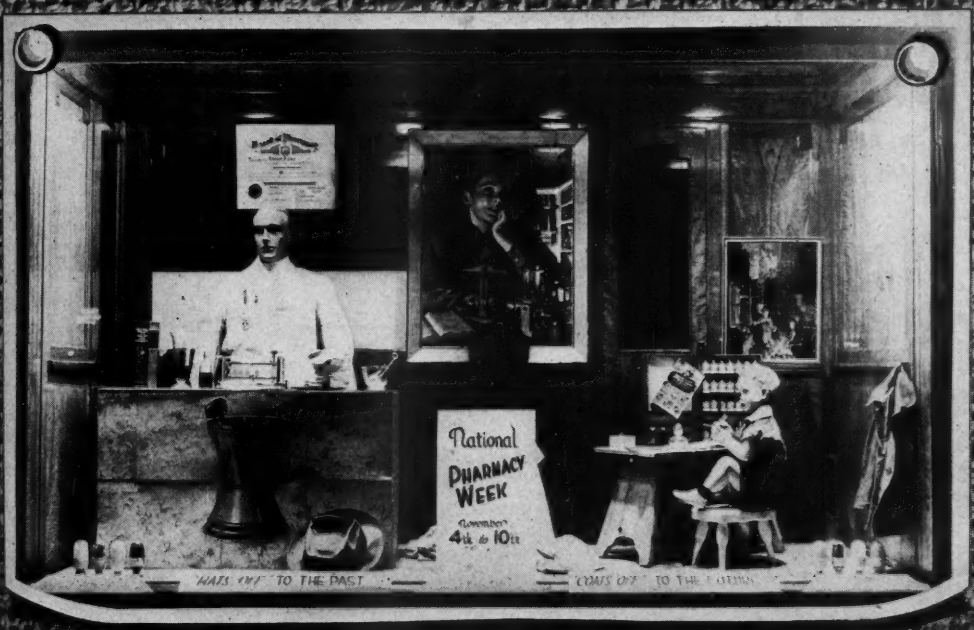
Appreciation of the efforts of all those who helped make the 1945 program a success was expressed by Charles R. Bohrer, Pharmacy Week chairman. He indicated that each year pharmacists have become increasingly aware of the value of this effort in impressing upon patrons the importance of their professional services.

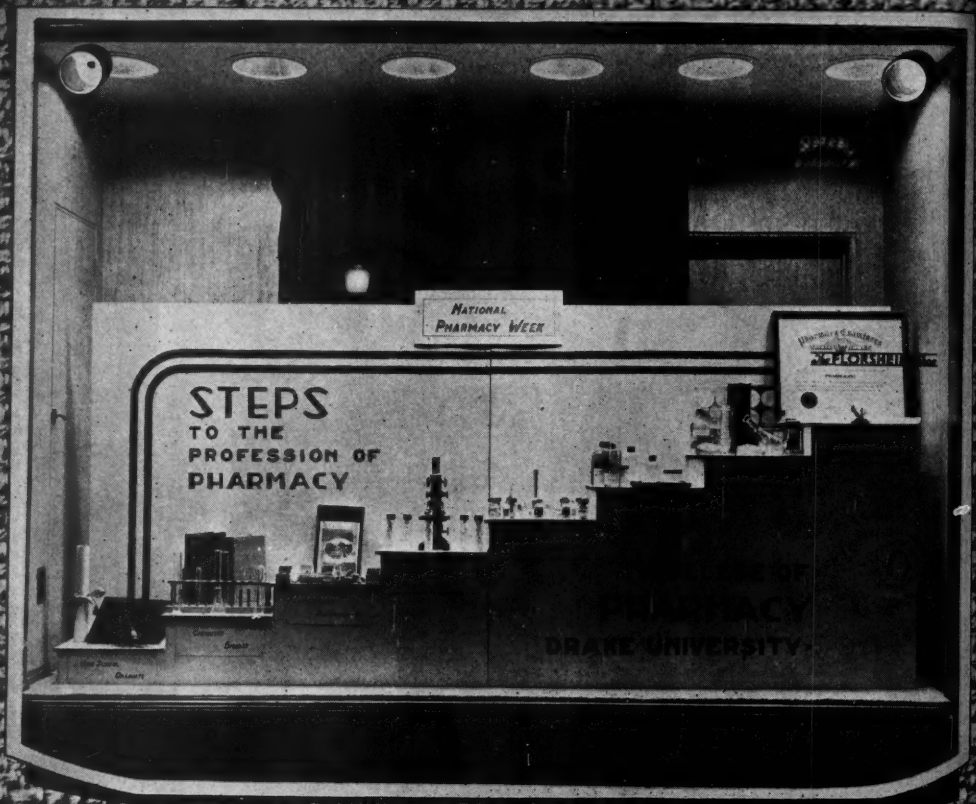
Those serving on the Pharmacy Week Committee with Mr. Bohrer were: R. D. Bienfang, Norman, Okla.; H. V. Darnell, Indianapolis, Ind.; L. J. Dueker, St. Louis, Mo.; L. L. Eisentraut, Des Moines, Ia.; L. J. Fischl, Oakland, Calif.; A. C. Fritz, Indianapolis, Ind.; E. W. Gibbs, Birmingham, Ala.; A. R. Granito, Hackensack, N. J.; J. W. Holt, Meridian, Miss.; E. C. Horn, Milwaukee, Wis.; John O'Brien, Oamaha, Nebr., R. Q. Richards, Fort Myer, Fla.; Walter Rhodes, Portland, Ore.; J. J. Staven, San Francisco, Calif.; and W. E. Waples, Baltimore, Md.

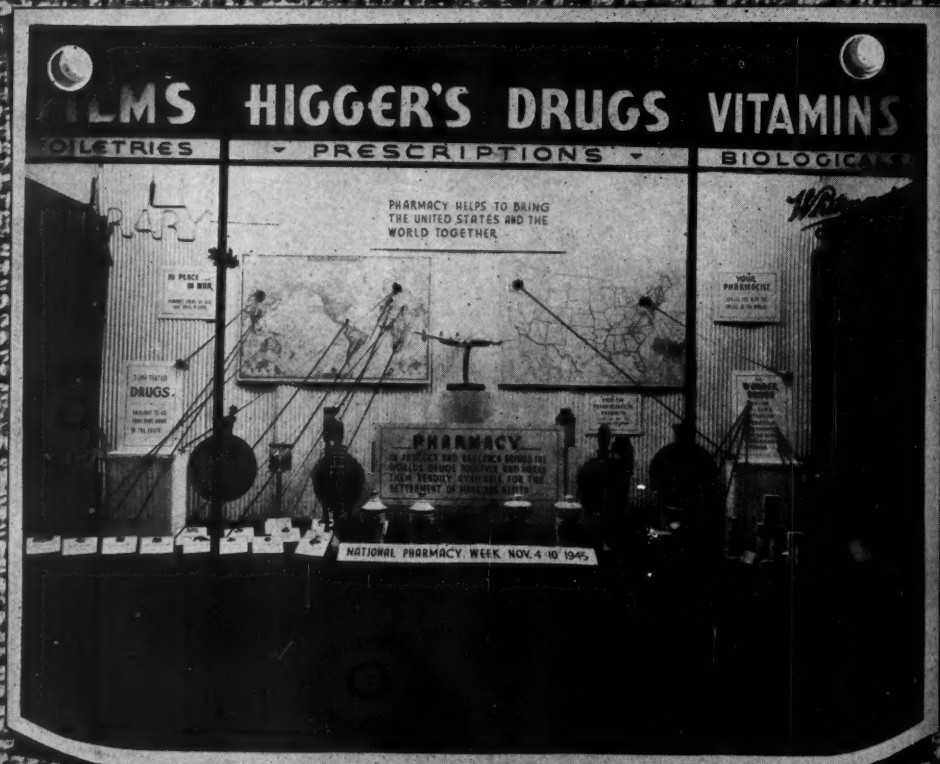
➡

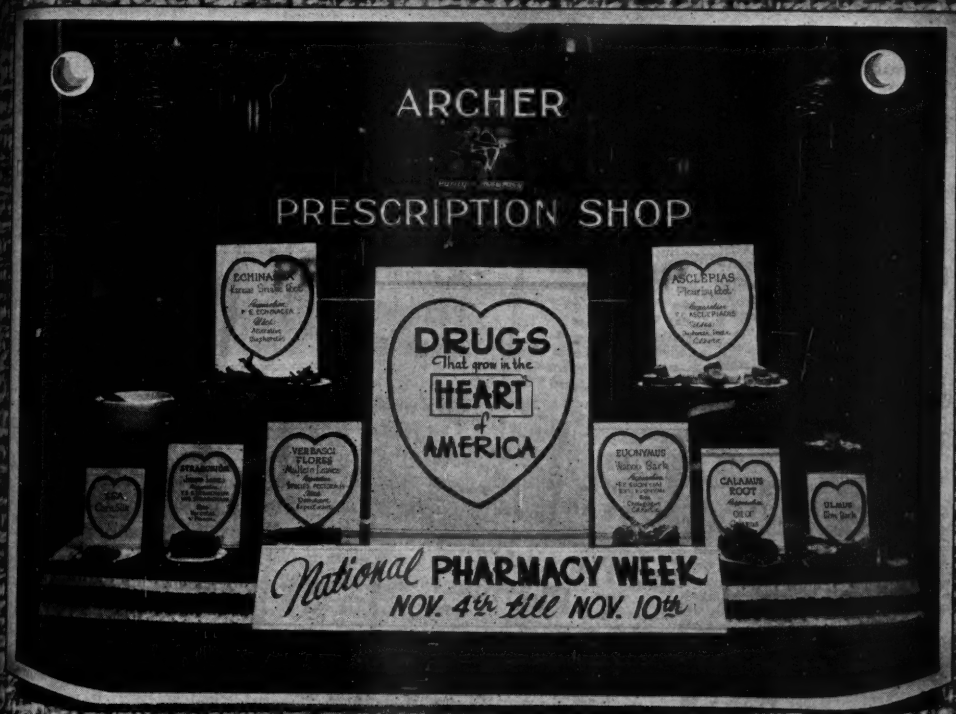
WINNING DISPLAYS of the 1945 Pharmacy Week contest are shown at the right. The Massachusetts College of Pharmacy won the college competition with a display (upper photograph) depicting the importance of drugs in greatly increasing man's life span since the days of ancient Egypt. The Weber and Judd Co. of Rochester, Minn., received the Robert J. Ruth Trophy as winners of the retail pharmacy division. The theme of their display (lower photograph) was "hats off to the past, coats off to the future."

How much of your age do you owe to drugs?
IT TOOK 3000 YEARS
..... to increase the age of man by 30 years.
The ancients knew many diseases but without effective drugs many died young.
Pharmacy through the centuries has furnished in ascending drug after drug until the span of mans life is now 68 years.
Consider what thanks we owe to Pharmacy for its unremitting to our longer healthier & happier lives.
An Egyptian infant had a life expectancy of much less than 35 years.
An infant born today.... thanks to the availability of proper drugs... has a life expectancy of 65 years....


National
PHARMACY
WEEK
November
4th to 10th
HATS OFF TO THE PAST
COATS OFF TO THE FUTURE


NATIONAL
PHARMACY WEEK
STEPS
TO THE
PROFESSION OF
PHARMACY
DRAKE UNIVERSITY


HIGGER'S DRUGS VITAMINS
PRESCRIPTIONS
PHARMACY HELPS TO BRING
THE UNITED STATES AND THE
WORLD TOGETHER
PHARMACY
NATIONAL PHARMACY WEEK NOV. 4-10 1945



DRAKE UNIVERSITY College of Pharmacy; first honorable mention in college division of Pharmacy Week display contest—upper left.

HIGGER'S DRUGS, Washington, D. C.; first honorable mention in retail pharmacy division—far left.

C. W. SCHMIDT, Archer Prescription Shop, Wichita, Kan., second honorable mention in retail pharmacy division—above.

HOAGLAND'S DRUGSTORE, New Brunswick, N. J., third honorable mention in retail pharmacy division—left.

News...

Truman Lauds Service of Pharmacists

Special to The Union.

WASHINGTON, Nov. 6—President Truman, in a Pharmacy Week message to Dr. George A. Moulton of Peterborough, N. H., president of the American Pharmaceutical association, praised the public Monday, thanking the association's pharmacists for their contributions to the health of the armed forces and the public during the war and urged that there be no deficiency in pharmacy service be maintained during the construction era.

"The pharmacists have earned the thanks of the American people for the splendid service which they have rendered during the war," President Truman said.

Unusual Pharmacy Week Window Dtsplay

Interesting Old Time Pharmacy Equipment and Medicines Shown in Bobrer Beside Modern

Nov. 4 To 10 Named Pharmacy Week

WASHINGTON, Nov. 4—(AP)—President Truman has asked the nation's pharmacists to carry on their "careful watch" on the public health "with the same efficiency" with which they served in wartime.

Dr. George A. Moulton, president of the American Pharmaceutical Association, today made public a letter from the President, written in connection with the observance of National Pharmacy Week from Nov. 4 to 10.

The letter, dated Oct 18, follows:

Truman Requests Druggists to Keep Same High Goals

Moulton Broadcasts From Washington

PETERBOROUGH, Nov. 6—George A. Moulton, president of the American Pharmaceutical association, spoke over WRC, Washington, Thursday afternoon and will also broadcast over Station WOL, while there, on the "Voice of the Apothecary" program. His talks are in keeping with National Pharmacy Week, which is being observed this week all over the nation.

Pharmacy Week To Be Observed Next Week In Nation

More Effective Drugs Seen In Coming Decade

A revolution that during the next 10 years more effective drugs will be developed than at any time in the past was made today by Dr. George A. Moulton, president of the American Pharmaceutical Association, whose annual observation "week" got under way with the observance also by release of a letter from President Truman thanking pharmacists for contributing to the health of the armed forces during the [illegible]

PRESCRIPTIONS HIT ALL-TIME HIGH THIS YEAR

Washington, D. C., Nov. 4 [Special]—Dr. George A. Moulton, president of the American Pharmaceutical association, ushered in National Pharmacy week today with the announcement that pharmacists filled more prescriptions this year than in any previous year in the history of the country.

PHARMACY WEEK HAILED

Truman Lauds War Aid of Those in Field, Cites Peace Task

WASHINGTON, Nov. 4 (AP)—A letter from President Truman, dated Oct. 18, was made public today by Dr. George A. Moulton, president of the American Pharmaceutical association, as follows:

"My thanks of the nation are due to you and your profession for the splendid service you have rendered during the war years. The thousands of pharmacists who have served in the Army and Navy in the additional capacity of dispensers have kept a careful watch of the civilian health and achieved a record of the highest praise. Your services, whether in the manufacture, distribution or dispensement, have been of the first order. With a view to making sure that the distribution to the armed forces and the message to

Truman Speaks To Pharmacists

WASHINGTON (AP) — President Truman has asked the nation's pharmacists to carry on their "careful watch" on the public health "with the same efficiency" with which they served in wartime.

Dr. George A. Moulton, president of the American Pharmaceutical Association, today made public a letter from the President, written in connection with the observance of National Pharmacy Week from Nov. 4 to 10.

The letter, dated Oct 18, follows:

Medical Association Pre dent Lauds Druggists On Anniversary

National Pharmacy W which is being observed du the week of November 4th ceived recognition in a state issued today by Dr. W. E. eiman, president of the Mid County Medical Society.

"National Pharmacy W said Dr. Sherman, "is th casion when all who ar cerned with the promo

NOVEMBER 4 TO 10 IS NATIONAL PHARMACY WEEK

November 4th to 10th is Nation Pharmacy Week. The Americ drug store is an institution, nothi like it anywhere else in the worl and so efficient and comprehensi that its marvels are not duplicat elsewhere in the world.

The pharmacist is one of our cl protectors as he compounds physicians's prescriptions, and h more than that. He is friend counsellor, aid and adviser. knows practically all the ans it's hangovers or h amins or vittles. In a ges he comes closes hen you ask for it. is long hours he asant and helpfu bout the handies Alwa

County Marks Pharmacy Week

Members of the Blair County Pharmaceutical Association which took [illegible]

Druggists Among Unsung War Heroes

In connection with the observance of National Pharmacy week, Dr. George A. Moulton, president of the American Pharmaceutical Association, reported that pharmacists in the United States filled more prescriptions in the past year than in any previous year. The record was achieved despite the absence of more than 10,000 pharmacists in the armed forces.

It is [illegible] You may not have noticed it, but this is National Pharmacy Week. Those who have come and gone [illegible] year unnoticed, have rendered valuable services of the highest order. Pharmacy is an essential service and the [illegible] so efficient and [illegible]

A Word of Praise for Hard-Working Pharmacist

This is National Pharmacy Week, a week in which your pharmacist takes a little time off from his arduous work to

LET'S GIVE THEM CREDIT

National Pharmacy Week

Beginning Sunday, Nov. 4, pharmacists of the U. S. have set aside a full week dedicated to their profession, reminding the public at large of the part pharmacy plays in cooperation with the other health professions in the [illegible] of the nation.

Editorials...

He's Earned It . . .

The man behind the prescription counter—your druggist—is getting a little special attention this week all over the nation. It's National Pharmacy Week, starting Sunday and continuing through Saturday, and the sole purpose is to pay tribute to the thousands of pharmacists who, each in his quiet way, does so much to keep the health of the nation at a high level.

What your druggist possesses in special knowledge and skill, he acquired the hard way—by years of study encompassing a variety of subjects. His education, like that of a doctor or lawyer, never stops. Constant "reading up" on new developments in his field is required to keep him posted. It is a never-ending process which starts when he enters college and ends when he retires from practice of the profession.

He has been described as a "key man" in the ceaseless campaign against disease. The description fits.

The contribution of the druggist to [illegible] in peace as well [illegible]

"As [illegible]

Herb Johnson

SALUTE TO OUR DRUGGISTS

This week, November 4th to 10th, is National Pharmacy Week. The drug store is an institution like it anywhere in the world, and so efficient, comprehensive that its marvels are duplicated elsewhere in

pharmacist is one of our protectors as he compounds sician's prescriptions, and re than that. He is friend nsellor, aid and adviser. practically all the answer it's hangovers or witamins or vittles.' In a mortages he comes closest it when you ask for it. his long hours he manages pleasant and helpful, and s about the handiest man ever. Always useful, he is ever during

PHARMACY WEEK

esident Truman's tribute to the macists of the nation on the nion of National Pharmacy Week, being observed, is well merited. druggists have had a difficult time of it during the war, with their own ranks depleted due to demands of the armed forces at the very time they had additional responsibilities and work because of the shortage of doctors. Yet, they played a big part in helping to safeguard civilian health, at the same time uncomplainingly furnishing the many other services that the public has come to expect from

'Round

Millville Pharmacists are ol erving National Pharmacy Week, November 4-11 and o of the most novel displays Millville may be seen in High Street window of the Alt Chiola store.

There is drug equipment prescriptions dating back r ly 50 years. Especially intere are the names of some of physicians of the 1892-93 p on those prescriptions. Tho Dr. Joseph C. Wheaton, and Pine Streets, under Masonic Home and that when the lodge hall was southwest corner; Dr. Jo Wade, 318 North Second who was president of th ville Board of Health fo Dr. William L. Newell, east corner of High a Streets, Dr. W. H. C 214 North Second St Dr. Leo Elstein, office Buck and Pine

PRELIMINARY REPORT ON MAGNESIUM TRISILICATE AS AN EMULSIFIER*

by C. LEE HUYCK
WITH THE TECHNICAL ASSISTANCE OF
LUCY J. PALUMBO and ANITA TRACY

CALCIUM, magnesium, zinc, aluminum and iron hydroxides as well as carbonates[1] form oil soluble soaps with the free acids usually present in animal and vegetable oils. Since they lower the interfacial tension between oil and water on the oil side, globules of water are enveloped and water-in-oil emulsions are produced.

The experimental work reported in this paper describes the use of precipitated hydrated magnesium silicate, commonly known as magnesium trisilicate, as an emulsifying agent for mineral, vegetable and animal oils.

Parsons and Wilson[2] prepared oil-in-water emulsions of heavy mineral oil using various emulsifying agents. When a soluble soap was used as the emulsifying agent, they found that inversion of phases took place by the addition of a molecular quantity of either magnesium sulfate, magnesium chloride, ferrous sulfate, aluminum sulfate or ferric chloride. The ratios of the equivalents of the metallic ions, rather than their absolute concentrations, were the important factors. Neutral monovalent salts like sodium chloride or sodium iodide broke the emulsions by the salting out process but did not cause inversion of the phases. Amylene seemed to stabilize oil-in-water emulsions in proportion to its concentration.

It has been found[3] that emulsification took place when mineral and tar oils were subjected to high-speed disintegration in a colloid mill in the presence of water and colloidal graphite, calcined magnesium oxide or magnesium carbonate. Talc or graphite may be added to increase the consistency of the product. Pastes were obtained when not more than 6 parts of water to 1 part of oil were employed. Liquid emulsions were prepared when water exceeded this proportion. These products were used as lubricants.

Mead and McCoy[4] found that when heavy metal soaps were dissolved in heated oil, erratic changes in the oil-water surface tension were produced. Experiments were conducted with magnesium, aluminum and sodium oleates and zirconium, aluminum and magnesium stearates. Zirconium and aluminum stearates gave the regular absorption form of curve. The other heavy metal soaps were either insoluble in the oil or they so increased the viscosity as to render determination impracticable. Sodium oleate solutions age markedly and may then give a water-in-oil emulsion instead of the usual oil-in-water emulsion. The aging was not found to be due to hydrolysis.

Brown[5] published the following formula for a mineral oil milk of magnesia emulsion:

Liquid paraffin.....	300	cc.
Acacia, in fine powder.....	75	Gm.
Vanillin, in fine powder.....	0.03	Gm.
Milk of Magnesia, *q. s. ad.*.	1000	cc.

Triturate the acacia and vanillin with the liquid paraffin. Add in one quantity 150 cc. milk of magnesia and triturate briskly until emulsified. Then add sufficient milk of magnesia to produce the required volume.

From the Research Laboratories of the Wm. S. Merrell Co.
* The author is indebted to Dr. R. S. Shelton, vice-president and technical director of the Wm. S. Merrell Co. for helpful suggestions in making this study possible.

Neuman[6] found that oleates of magnesium and zinc promoted emulsions of benzene in water.

Briggs and Schmidt[7] investigated the emulsification of water by magnesium oleate. The gradual addition of 90% water to benzene containing 1% magnesium oleate made a concentrated stiff jellylike emulsion. This emulsion did not remain stable for more than a few hours. Stiff, viscous emulsions of water in benzene were also prepared using aluminum palmitate, but the water appeared as large irregular drops entangled in a voluminous precipitate of gelatinous character. Such quasi-emulsions separated in about thirty minutes.

Stea[8] found that the addition of 0.5 Gm. of light magnesium carbonate to an emulsion containing 30 Gm. almond oil and 3 Gm. gum arabic facilitated preparation and permitted the use of only 1.5 Gm. of gum arabic per 100 cc. of finished product. In an emulsion of castor oil, the addition of magnesium carbonate was not needed, nor was it needed in an emulsion of a mixture of the two oils when castor oil was present in excess or equal to the amount of almond oil. When equal parts of almond oil and castor oil were used to replace the almond oil, it was found that the amount of gum arabic should be slightly increased. If the quantity of castor oil was less than that of almond oil, the addition of magnesium carbonate was necessary. Water was the remaining ingredient in these emulsions.

Howlett[9] has patented the use of magnesium carbonate as a dispersing agent for oils in water.

Iselin[10] found that calcium, magnesium, zinc, aluminum and iron hydroxides form water-in-oil emulsions. The stability of these emulsions increased inversely with the molecular volume of the hydroxides, that is, the molecular weight of the hydroxide divided by its density. Oil-in-water emulsions of castor, olive, or cod liver oil were formed with caesium, potassium, sodium or silver soaps. The stability of these emulsions decreased inversely with the molecular volume.

It has been found[11] that olive oil gives a more stable emulsion with magnesium oleate than mineral oil. The most stable *p*H range was from 11 to 12.5. At *p*H 2.5 the emulsion was extremely unstable. The surface tension of water-in-oil emulsions was unaffected by *p*H changes of the internal phase. As a general rule, unstable emulsions have a lower viscosity than stable emulsions. Particle size variations up to an average of 30 microns did not alter the stability of the emulsion.

Experimental Part

Emulsions of heavy mineral oil and light magnesium trisilicate* were prepared by adding the proper weight of distilled water to the light magnesium trisilicate contained in a glass beaker followed by the gradual addition of the proper weight of heavy mineral oil with high-speed stirring. The details concerning emulsions of heavy mineral oil and magnesium trisilicate are summarized in Table I. A satisfactory emulsion in this study means that the emulsion remained homogeneous and showed no separation at the end of the aging period.

TABLE I.—PERCENTAGE COMPOSITION AND STABILITY OF EMULSIONS OF HEAVY MINERAL OIL AND LIGHT MAGNESIUM TRISILICATE

Number	Distilled Water	Magnesium Trisilicate	Heavy Mineral Oil	Stability After Two Months at 37½° C.
A_1	65.2	19.1	15.7	Unsatisfactory
A_2	69.65	16.65	13.7	Unsatisfactory
A_3	73.1	14.8	12.1	Unsatisfactory
A_4	75.8	13.3	10.9	Unsatisfactory
A_5	78	12.1	9.9	Satisfactory
B_1	56.3	16.6	27.1	Satisfactory
B_2	65.2	13.2	21.6	Unsatisfactory
B_3	70.9	11	18.1	Unsatisfactory
B_4	75.09	9.41	15.5	Satisfactory
B_5	78.2	8.25	13.55	Satisfactory

A minimum of 8.25 parts of light magnesium trisilicate emulsified 13.55 parts of heavy mineral oil.

Emulsions of cod liver oil and light magnesium trisilicate were prepared by adding the proper weight of distilled water to the light magnesium trisilicate contained in a glass beaker, followed by the gradual addition of the proper weight of cod-liver oil U. S. P. with high-speed stirring. The details concerning the emulsions of cod-liver oil and magnesium trisilicate are summarized in Table II.

A minimum of 11.8 parts of light magnesium trisilicate emulsified 20.8 parts of cod-liver oil.

Emulsions of castor oil and light magnesium trisilicate were prepared by adding the proper weight of distilled water to the light magnesium trisilicate contained in a glass beaker followed by

* The magnesium trisilicate was purchased from the Schofield-Donald Co., Inc., Newark, N. J. It is believed that magnesium trisilicate from different manufacturers may differ in emulsifying properties.

TABLE II.—PERCENTAGE COMPOSITION AND STABILITY OF EMULSIONS OF COD-LIVER OIL AND LIGHT MAGNESIUM TRISILICATE

NUMBER	DISTILLED WATER	MAGNESIUM TRISILICATE	COD-LIVER OIL U. S. P.	STABILITY AFTER TWO MONTHS AT 37½° C.
A_1	64.55	18.9	16.55	Satisfactory
A_2	69.1	16.5	14.4	Satisfactory
A_3	72.55	14.65	12.8	Satisfactory
A_4	75.25	13.2	11.55	Satisfactory
A_5	77.5	12	10.5	Satisfactory
B_1	55.4	16.2	28.4	Unsatisfactory
B_2	60.4	14.4	25.2	Satisfactory
B_3	64.2	13	22.8	Satisfactory
B_4	67.4	11.8	20.8	Satisfactory
B_5	70	10.9	19.1	Unsatisfactory

the gradual addition of the proper weight of castor oil U. S. P. with high-speed stirring. The details concerning emulsions of castor oil and magnesium trisilicate are summarized in Table III.

A minimum of 10.8 parts by weight of light magnesium trisilicate emulsified 9.5 parts by weight of castor oil.

Discussion of Results

A preliminary study of the type presented, in which the opinion of the author is the sole basis for the evaluation of an emulsion as satisfactory or unsatisfactory, leads to a high experimental error. Another factor which contributes to experimental error is the unpreventable evaporation of water from samples which were stored at 37½° C. Although screw cap bottles with vinylite liners were used, it is practically impossible to tighten each cap to a point where there is no evaporation of water.

Minimum values of Tables I, II and III are:

Eight and twenty-five hundredths parts by weight of magnesium trisilicate emulsified 13.55 parts by weight of heavy mineral oil. This proportion of ingredients is the most satisfactory of the group since it produced the most fluid preparation after two-months storage at room temperature. It is to be noted that a lower limit was not reached where instability occurred.

Eleven and eight tenths parts by weight of magnesium trisilicate emulsified 20.8 parts by weight of cod-liver oil. This proportion of ingredients is not the most advantageous since it poured with difficulty from the bottle after storage for two months at room temperature. The most advantageous proportion is 12 parts of magnesium trisilicate and 10.5 parts of cod-liver oil.

Ten and eight tenths parts by weight of magnesium trisilicate emulsified 9.5 parts by weight of castor oil. This proportion of ingredients is the most advantageous of the group since it produced the most fluid preparation after storage for two months at room temperature.

Since the emulsifying properties of magnesium trisilicate for vegetable and animal oils appeared to be no better than for mineral oil, emulsification was probably produced by mechanical action or coating the oil globules with an insoluble powder and not by a soap[1] formed from the free fatty acids and magnesium trisilicate. Another point which substantiated this view was that phase testing of the emulsions by the dye method[12] indicated that they were oil-in-water emulsions.

Summary

1. Light magnesium trisilicate is an emulsifying agent for mineral, vegetable and animal

TABLE III.—PERCENTAGE COMPOSITION AND STABILITY OF EMULSIONS OF CASTOR OIL AND LIGHT MAGNESIUM TRISILICATE

NUMBER	DISTILLED WATER	MAGNESIUM TRISILICATE	CASTOR OIL U. S. P.	STABILITY AFTER TWO MONTHS AT 37½° C.
A_1	64.2	18.8	17	Satisfactory
A_2	68.65	16.45	14.9	Satisfactory
A_3	72.2	14.6	13.2	Satisfactory
A_4	75	13.1	11.9	Satisfactory
A_5	77.25	11.95	10.8	Satisfactory
B_1	55	16	29	Unsatisfactory
B_2	59.8	14.3	25.9	Satisfactory
B_3	63.7	12.9	23.4	Satisfactory
B_4	67.05	11.75	21.2	Unsatisfactory
B_5	79.7	10.8	9.5	Satisfactory

oils when used in the proportions indicated.

2. Since oil-in-water emulsions were produced, emulsification was probably brought about by mechanical action and not by soap formed from the interaction of free fatty acids present in the oils and light magnesium trisilicate.

REFERENCES

1. Cook, E. F., and La Wall, C. H., "Remington's Practice of Pharmacy," 8th Edition, J. B. Lippincott Co., Philadelphia, 1936, p. 1634.
2. Parsons, L. W., Wilson, O. G., *J. Ind. Eng. Chem.*, **13**, 1116–23 (1921).
3. Plauson's Parent Co. Ltd., Brit. patent 185,779, April 6(1921), through *Chem. Abstr.*, **17**, 320 (1923).
4. Mead, B., and McCoy, J. T., "Fourth Colloid Symposium Monograph," 1926, pp. 44–57.
5. Brown, H. T., Science Section of the British Pharmaceutical Conference (1933 session) through *Am. J. Pharm.*, **105**, 422 (1933).
6. Newman, *J. Phys. Chem.*, **18**, 45 (1914), cited by Clayton, W., "The Theory of Emulsions and Their Technical Treatment," 3rd Edition, P. Blakiston's Son & Co., Inc. Philadelphia, 1935, p. 97.
7. Briggs and Schmidt, *J. Phys. Chem.*, **19** 491 (1915) cited by Clayton, W., *ibid.*, p. 97.
8. Stea, R., *Scienza del farmaco*, 1935, No. 3, *Schweiz. Apoth.-Ztg.*, **73**, 618–19 (1935), through *Chem. Abstr.*, 30 3590 (1936).
9. Howlett, L. J., Australian patent 111,378, August 26, 1940, assigned to Wesley H. Howlett and Ronald H. Warneford; through *Chem. Abstr.*, **36**, 2649 (1942).
10. Iselin, *Boll. chim. farm.*, **67**, 225 (1928), through Bennett, H., "Practical Emulsions," Chemical Publishing Co., New York, 1943, p. 18.
11. Bennett, H., *ibid.*, p. 5.
12. de Navarre, M. G., "The Chemistry and Manufacture of Cosmetics," 1st Edition, D. Van Nostrand Co., New York, 1941, p. 204.

PAUL JANNKE AWARDED EBERT PRIZE

DR. PAUL JANNKE of the University of Nebraska College of Pharmacy has been awarded the 1945 Ebert Prize as senior author of the paper, "Sclerosing Agents—Sodium Morrhuate." Howard Jensen received special mention as co-author and collaborator.

The prize-winning paper, published in the *Scientific Edition* of THIS JOURNAL (33: 362, 1944), represented original research on a widely used sclerosing agent for obliterating varicosities. Investigations were supported in part by a fellowship from the AMERICAN PHARMACEUTICAL ASSOCIATION. Grants-in-aid for early stages of the work were made by the American Association for the Advancement of Science and the Nebraska Academy of Arts and Science.

Experimental results indicated that the salts prepared from the more nearly saturated fatty acids of cod-liver oil are highly effective as sclerosing agents, and their action is accompanied by minimum irritation of short duration.

Evidence was offered to show that commercial samples of sodium morrhuate differ greatly in physical, chemical and pharmacologic properties. For estimating the sclerosing properties of sodium morrhuate, the iodine number of the free fatty acids did not prove reliable. Dr. Jannke also found that the presence of a completely soluble precipitate in sodium morrhuate solutions for parenteral use does not indicate inferiority as regards desirable sclerosing properties.

The Ebert Prize was awarded for this work on the recommendation of the Ebert Prize Committee of the Scientific Section of the AMERICAN PHARMACEUTICAL ASSOCIATION. With permission of the A. PH. A. Council, the selection was based on experimental papers published in the *Scientific Edition* during the previous year. This policy has been recommended by the Committee as standard procedure in selecting future winners. The award is made through a fund established in 1873 by Albert E. Ebert.

PAUL JANNKE

PHARMACY IN THE BRITISH ISLES

by SAMUEL KOHAN

A. PH. A. MEMBER OBSERVES ENGLISH PRACTICE THROUGH ARMY EDUCATION PROGRAM

UPON the conclusion of hostilities in Europe the Army instituted an educational program under the direction of the Information and Education Division which permitted qualified personnel to pursue various courses of study of either academic or practical nature. French and British universities cooperated in this program and sections of English industry participated by allowing "observers" in their establishments. Acting for British pharmacy, the Pharmaceutical Society of Great Britain sponsored the placement of pharmacists in hospitals and retail pharmacies for a period of three weeks. Although Army personnel were intended to act only as observers, all who participated in this program worked at compounding, manufacturing or dispensing, volunteering for such duty upon noting the need for such aid.

On arrival at I-E Headquarters for the United Kingdom at 27 Grosvenor Square, London, pharmacy students were given their choice of selecting a hospital or retail pharmacy as their place of study. The writer selected Fulham Hospital, in London, and reported there the following morning. It was found that the hospital was "blitzed" several times, resulting in the total destruction of one wing. The pharmacy was staffed by two woman pharmacists and a male assistant. As soon as introductions were over the writer was at work manufacturing various preparations. With a copy of the National War Formulary in one hand and a copy of the British Pharmacopœia in the other very little difficulty was encountered.

The National War Formulary issued by the Ministry of Health directed the course of operational procedure for British pharmacy during the war and is still in force. Its aim was "to provide a selection of medicines sufficient in range to meet the ordinary requirements of therapeutics, to retain as far as possible the more valuable and more frequently prescribed preparations, modified where necessary, and to eliminate nonessential drugs. Alternatives have been provided, where practicable, for certain drugs which are short in supply." Due to the general use of the Formulary most impressions of British pharmacy were those based on wartime practice.

The first strange encounter was the use of 20-ounce bottles and its multiples. As most liquid medication was administered in 0.5-ounce doses t.i.d. this necessitated the use of 20-ounce containers in the majority of cases. If a prescription indicated its use for thirty days the patient was loaded down with enough medication to last that period. Smaller quantities were not dispensed in such instances, as it added to the tasks of an already overburdened staff should renewals be encouraged. Upon inquiry it was learned that the half-ounce dose was the average one employed for most liquids. Although England was experiencing a severe glass shortage the government dared not lower the dosage by concentrating medications for fear of accidents. The English people had long been educated to the half-ounce dose and it was thought wise not to alter this precept.

Another strange custom was the use of spoken abbreviations. Words like "potcit," "ammon-

Editor's Note: A. PH. A. member Samuel Kohan, of New York City, was one of the pharmacists chosen by the Army to participate in the on-the-job training program in England. In the accompanying article he gives some impressions of British pharmacy while serving as an observer in a London hospital pharmacy. Pharmacists, and members of other professions and trades, were given this opportunity as "refresher" training, to learn something of the British people and their institutions and to hasten readjustment to civilian life while awaiting return to the States. The essential value of the program was expressed in a letter to Mr. Kohan by Secretary Hugh N. Linstead of the Pharmaceutical Society of Great Britain when he said: "British pharmacy is glad of this opportunity to strengthen the ties of friendship between our nations, and hopes, in addition, that the exchange of pharmaceutical information and ideas made possible by the scheme will be to the ultimate benefit of pharmacy as practiced by both our nations."

During the war Mr. Kohan served a year in the Chemical Warfare Service, two years in charge of the pharmacy at Lowry Field, Colorado, and later with the Military Intelligence Service in the European theater.

carb" and "magcarb" sounded foreign until they were written and deciphered. The writer followed this procedure as a measure of precaution, not only because such phraseology was new, but one never could be certain what was intended when it was also spoken in a true English accent. The writer confirmed the use of word abbreviations as a common practice in British pharmacy.

The technical differences were legion. Tinctures were replaced by "liquid extracts." Emulsions of chloroform and peppermint were used for flavoring purposes. The most common antiseptics employed were solutions of mercury oxycyanide, mercury biniodide and chloramine. Syrups were strictly limited to infant use and were termed "linctuses." Many of their Misturas did not follow the American pattern for such preparations as they were more closely allied to our Liquors.

The use of proprietaries was limited to bare necessities and physicians were urged to write for B. P. equivalents. A very useful guide for this practice was the printed list in the National War Formulary together with their authorized substitutions. A peculiar difference in terminology was noted for the barbiturates, and still remains without explanation. All such products bore the suffix "-one" in their names. For example, phenobaribital was called "phenobarbitone."

Concerning retail pharmacy, it was noted that some drugstores did no dispensing and were comparable to the German "drogerie" where only patent medications were sold. Most pharmacies, or chemists, as they are called, closed shop about 6 p. m. This is an old custom and not a result of the war. Most students engaged in retail establishments were unaminous in their observation of the great respect afforded pharmacists by the public. None of the pharmacies operated soda fountains or engaged in general merchandising. Pressure selling was an unheard-of thing and the fufillment of a patron's wish was the only duty of the seller. This evoked much comment from those who at one time had been employed in cutrate establishments in the States.

The writer is incapable of giving a more detailed picture of retail pharmacy because of his assignment at a hospital. It is hoped that some student who participated in the retail program will relate his experiences.

The participation of the writer in the pharmacy course offered by the Army was a novel and thrilling experience. It introduced him to methods of pharmacy as practiced in a foreign land and also an opportunity to study his English fellows. In a moment of history when only mutual understanding and respect can assure a lasting peace among nations, the good will fostered by the Army educational program was an important step in this direction. The Information and Education Division deserves high commendation for its efforts.

A. M. A. JOURNAL CONDEMNS NEW NAMES FOR PENICILLIN

The *Journal of the American Medical Association* (130: 279, 1946) editorially charges that "leaders in the drug and chemical industries, apparently avid for the kind of profits that can be derived from well-exploited medical specialties, have let their imaginations and their greed run riot in a search for specific trade names to designate some penicillin products."

The editorial says that the name "penicillin," which truly reflects the source of the product, was deliberately chosen as a descriptive title. The modesty of the investigators led them to avoid using their proper names as the title.

"Instead of selling penicillin under its simple and well-known name," the A. M. A. editorial says, "they [the manufacturers] have become downright silly and offer penicillin under so many names that only a professional solver of crossword puzzles could guess the nature of the products that these names conceal."

Some of the new penicillin names which the editorial listed were: Amphocillin, Penioral, Bucillin, Topicillin, Delacillin, Ledercillin-G and Per-Os-Cillin.

"Some of these are for oral use," the A. M. A. *Journal* says, "some for local application, one is to be mixed 'before taking' with something else. The promulgators of these products and their sale are interested in helping their own pocketbooks by trying to make certain that the prescribing physician will limit himself to their products:

"But who could guess that Amphocillin and Bucillin refer to penicillin for oral use? Who can believe that Delacillin is really penicillin calcium in peanut oil and beeswax? You might surmise the nature of Ledercillin-G, but we will lay eight to five that you would miss on Penioral. Would you think it useful especially for gonorrhea? Well, that isn't it. Then what about Per-Os-Cillin? Something concerned with an opening, but which one?

"Some day scientific aims and business promotion will be more closely knit. When that day arrives every one will breathe a sigh of relief, including the promoters. Perhaps they will finally realize that a scientific approach gains the confidence of the prospective buyers and really promotes use."

Science News Capsules

COMPLETION of the 200-inch telescope at Mt. Palomar will permit observations to test a new concept of *relativity*. This theory reduces the population of the universe to only about 11 billion galaxies. It is expected that the huge telescope will bring into visual range remote galaxies whose light spends up to 1000 million years reaching us. The notable difference between theories largely centers on the distribution of these hitherto unseen star systems.

Jap victims of the atomic bomb did suffer "true forms of *radiation sickness*," according to Comdr. J. J. Timmes, Navy medical officer. Symptoms included fever, loss of appetite, bleeding gums, bloody diarrhea and an aplastic type of anemia. Many patients lost their hair. Teeth were loosened and could easily be removed. Gold fillings subsequently examined contained radiant energy. The idea that the bombed area would continue to be radioactive following the blast is dispelled, however, by the Navy findings.

Susceptibility to *infantile paralysis* increases in summer possibly because of the effect summer heat has on body chemistry. This suggestion from the University of Tennessee is based on studies of the effects of temperature on polio susceptibility in mice.

A giant prominence, similar to the huge flame-like clouds of gas which erupt from the surface of the sun, has been discovered on one component of the *double star Zeta Aurigae*. The huge cloud of gas may be nearly as large as the sun itself, according to the Harvard College Observatory.

With the isolation of the *St. Louis encephalitis* virus in California for the first time and definite evidence that fowl are the main reservoir of the disease, medical scientists are trying to fit together the general pattern of this so-called sleeping sickness in the Western states. Fowl, both domestic and wild, are the principal reservoirs of the virus. Mosquitoes, especially Culex tarsalis, feed on the fowl, then bite horses and man.

An English-built combination land-plane, float-plane and ski-plane, called the *Aerocar*, will soon be ready for testing in flight.

An awe-inspiring picture of how *Loran* might be developed to guide pilotless aircraft and bombs in any future warfare was described at the recent meeting of the Institute of Radio Engineers. Civilian ships and planes of the future may also be guided without human assistance and with no possibility of deviating from a fixed course. Loran, a wartime development of American science, is similar to radar but differs in having the transmitters at fixed points on the ground along coast lines or on islands, and only receivers in the planes or ships.

High praise for *American glass and lens makers* comes from Col. G. W. Goddard of the Air Technical Service Command, indicating that lens products made in America during the war were superior in certain cases to the German types traditionally used. Camera lenses and shutters were equal to, if not better than, any ever produced in Europe.

The radio waves bounced off the moon in the Army's radar experiments were not the first radio waves to arrive on earth from outer space. A *cosmic radio hiss* that seems to originate in the stars of the

ERYTHROCYTES appear as shown above when magnified approximately 7500 diameters. Details of the plate-like red cells, with deep depressions in the center, are revealed in this electron micrograph made possible by a new replica technique. The impression of a blood smear left on thermoplastic film is permanently recorded by depositing a thin silica film upon it. The silica cast is then photographed. This technique has proved useful when specimens are too dense to be photographed satisfactorily at very high magnifications.

Milky Way or in interstellar space was discovered in 1932. This Milky Way static is probably the first radio impulse received from outer space, although the moon-reflected radar wave is the first man-made radio signal to be received on earth after a travel in outer space.

Elastic plastic, a polyvinyl resin called Marvinol, will be available within a year in the form of swim suits, purses, gloves, shoes, raincoats, umbrellas, as well as transparent garden hose and multi-colored wire insulation, according to the Glenn L. Martin Co.

Chemical liquids which vaporize only at high temperatures may be the future mediums for conveying *heat in homes*, instead of water and steam. Tetra-cresyl silicate and other compounds are being extensively investigated.

The Cyclone 9HD, said to be the world's most powerful *air-cooled engine* per pound of weight, will soon be in use in transport planes. Each engine weighs 1352 pounds and produces 1425 horsepower.

Development of *economical atomic power* is not a simple extrapolation of knowledge gained from atomic bomb work and much intensive laboratory research must precede peacetime applications, according to General Electric's research director. He rules out the use of atomic power for automobiles and railroad locomotives as unpractical but called propulsion of large ships "not only possible but attractive." Atomic power plants for electric power generation are foreseen as competing successfully at some future time with coal, oil and water power energized plants.

Plastic body armor made of laminated glass cloth was ready for use in combat jackets by Navy and Marine personnel when the war ended.

A chlorinated hydrocarbon ($C_{18}H_6Cl_8$) may become a *competitor of DDT* and is claimed to be even deadlier to some insect species. The practical value of "1068" will apparently depend on future findings concerning toxicity in animals other than insects.

"SOFAR," an underwater sound system developed by the Navy in cooperation with Woods Hole Oceanographic Institution makes it possible to locate survivors of plane and ship disasters far at sea. A TNT charge dropped underwater by the survivor and timed to explode at a depth of 3000 to 4000 feet sets up underwater sound waves that are picked up by hydrophones at shore stations. The deep water sound zone, the existence of which was only recently confirmed, produces a "speaking tube" effect. Survivors can be located within a square mile of sea as far as 2000 miles from shore, it is claimed. No other man-made sound has ever been heard more than a small fraction of this distance.

A new *tanning compound* for leather (Monsanto), to replace the natural product formerly obtained from chestnut trees, has been synthesized following a study of the molecular structure of natural tannin extracts.

Jet-propelled private planes are a possibility of the near future as a result of fundamental research being conducted by the National Advisory Committee on Aeronautics.

Thoroughbreds really do have blood that is different from that of other horses. Cornell scientists found that *thoroughbred racers* have smaller erythrocytes and lower hemoglobin concentration in the cells than work horses. But the number of red cells per cc. of blood is by far the highest in race horses. This provides a larger quantity of oxygen-carrying hemoglobin per unit volume, which would supposedly be an advantage in high-speed running.

Unborn female *mice* that never lived to see the light of day have nevertheless become the mothers of new broods of mice. In unique experiments at the Jackson Memorial Laboratory in Bar Harbor, Me., dead embryo mice were enabled to produce living offspring through the transplantation of their still immature ovaries into the bodies of other female mice whose ovaries had just been removed. The technique may be scientifically valuable in deciding relative importance of heredity and maternal environment, to provide an opportunity to study the effects of hormones in prenatal development and the significance of hereditary factors in cancer.

DDT in dog soap may provide a simple way to eliminate the flea problem. British experimenters found that dogs washed with the soap are not only rid of vermin but do not become reinfested for some time. Only 1 of 12 dogs treated had picked up a few fleas after nine weeks.

Work has been resumed on a 4000-ton *cyclotron* at the University of California, which will be three times larger than any now available. Prof. E. O. Lawrence, physicist and Nobel Prize winner, predicted that the machine may result in atomic energy from cheaper sources than uranium, the discovery of new elements, and the artificial production of cosmic rays.

Improved methods of producing *chlorine and mercury* that may benefit the United States have been discovered in Germany. A commission is visiting Europe to secure technical information on the mercury chlorine cells, which will be brought to this country by the Army Chemical Warfare Service.

Two plants are to be constructed to produce the heavy carbon isotope, *carbon 13*, the Sun Oil Co. and Houdry Process Corp. have announced. World supplies of this chemical element will thus be increased at least 500 times. Carbon 13 is used as a tracer in chemical reactions in both living and nonliving material, a valuable technique in research on many diseases.

Nitric oxide can now be made by a simple inexpensive method developed at the University of Wisconsin which promises to replace the electric arc and the Haber methods in nitrate production.

Newly discovered *brasilianite*, a yellowish-green gem stone of unique chemical and crystallographic properties, is the first new mineral with gem-stone possibilities to be described since 1909.

Adequate supplies of the new *insect and chigger repellent* called "612" are expected to be on the market next summer. Chemically the compound is 2-ethylhexanediol-1,3. Under laboratory conditions one application keeps mosquitoes away for an average of about nine hours.

Remains of a type of *human culture* hitherto unknown, have been excavated in the Soviet republic of Azerbaijan. Archaeologists place the culture in the first millenium B.C., during the bronze and iron ages.

A *non-petroleum motor oil* for automobile and aircraft engines has been placed on the market in limited areas. The new product (Prestone) is said to flow freely at −30° F. and does not thin out at high temperatures. It can thus be used the year around without change of grade.

Adaptation to *civilian aviation* of various radar devices and heat de-icing for wings and propellers should result in completion of flights 99% of the time, as compared with the present average of 91%, the research director of Curtiss-Wright predicts.

A lower-cost method for purifying *sulfathiazole* has been reported in a patent (No. 2,392,125) assigned to the American Cyanamid Co.

Rear-engine automobiles are a possibility by 1947 or whenever public demand develops, it was reported at a recent meeting of the Society of Automotive Engineers. Rear-mounted engines in test cars resulted in better traction, easier steering and permitted better utilization of body space.

Tetrachloro-diphenyl-ethane (TDE), a chemical relative of DDT, is even deadlier in its effects on mosquito larvae and has a more prolonged action. U. S. Department of Agriculture experiments are still in the preliminary stage.

Vitamin A, hitherto obtained from fish liver oils, has been synthesized at M. I. T. Only preliminary work has been done to translate the laboratory synthesis into terms of a commercial production process.

A coaxial cable line now ready for transmission of *television* pictures and sound between Washington, D. C., and New York City is the first link in a national network of over 6000 miles planned by the Bell System, and will be used both for television and telephone.

Alkyl sulfates, which are used in "soapless" soaps and shampoos, may provide a remedy for "peptic" ulcers (*Science*, Jan. 11, 1946). These chemicals act on stomach tissue to stimulate secretion of mucus, and may inactivate pepsin under certain conditions. A constantly renewed layer of mucus, present evidence indicates, is the chief protection of the stomach lining against the destructive action of gastric juice and consequent ulcer formation. Experiments with alkyl sulfates, particularly sodium dodecyl sulfate, to enhance this protective mechanism are still in the laboratory stage.

The *electric eel* has used principles somewhat similar to radar for millions of years to locate living food. In the muddy South American streams where they live, electric eels send out frequent electric impulses which, striking such food possibilities as other fish or frogs, bounce back and affect the sender's sensory apparatus. Having detected food, or perhaps an enemy, the eel discharges a shock of several hundred volts, sufficient to stun his quarry.

America's first wave of *immigrants* "came across" only 15,000 or 20,000 years ago, says Dr. F. H. H. Roberts, Jr., Smithsonian Institution anthropologist. Before that the road from Asia to Alaska had been blocked by impassable glaciers for at least another 20,000 years during the last great Ice Age.

(Condensed from Science Service)

PROCTER MEDAL AWARDED TO DR. A. N. RICHARDS

The Procter Medal, established by the Philadelphia Drug exchange in honor of William Procter, Jr., has been awarded to Dr. A. N. Richards, professor of pharmacology and vice-president in charge of medical affairs of the University of Pennsylvania.

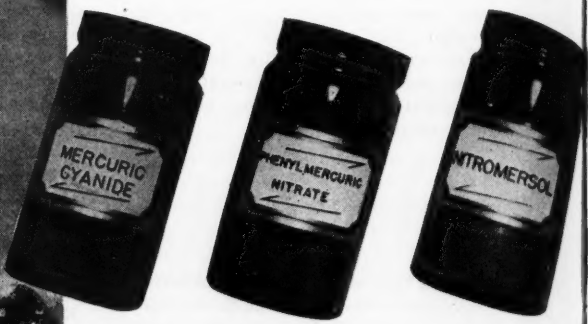
Dr. Richards, who has been chairman of the Committee on Medical Research of the Office of Scientific Research and Development since 1941, received the award "for distinguished services in the fields of physiology and pharmacology as teacher, author, researcher and administrator, and specifically for his untiring effort and contribution toward the early accomplishment of the production of penicillin."

Speakers at the presentation dinner held in Philadelphia were Dr. Chester S. Keefer of Evans Memorial Hospital, Boston, and Fred J. Stock of the Charles Pfizer Co. Mr. Stock was with W. P. B. during the pioneering days of penicillin production, in which the Medalist, Dr. Richards, played an important part.

Presentation of the Procter Medal was made by Dr. Charles E. Vanderkleed of McNeil Laboratories. Frank F. Law of Wyeth, Inc., was the toastmaster.

ANTISEPTIC MERCURIC

by MARY ESTILL MARTIN*



INORGANIC mercury compounds, particularly mercuric chloride, which were introduced into medicine soon after phenol, were among the first antiseptics and disinfectants to be used. Although still in use, these compounds have been found to have a germicidal activity much lower than originally supposed. The following discussion will be limited to nitromersol and its preparations,† phenylmercuric chloride,‡ phenylmercuric nitrate,‡ and mercuric cyanide,§ mercurials which have been admitted to the eighth edition of the National Formulary.

It should be noted that the mercury compounds organic and inorganic, are bacteriostatic but may be bactericidal under certain conditions. They cannot be relied upon to kill bacterial spores.[1]

For bacteriostatic action, the inorganic mercury compounds must be in the ionic state, the mercury ion being a precipitant for protein. This action, according to Goodman and Gilman, is by no means specific for bacterial protoplasm, precipitating the protein of tissues as well as that of microorganisms.

Therefore the inorganic mercurials are very irritating to tissue, have poor penetrability, and lose much of their germicidal potency in an excess of extraneous protein.[2] Inorganic mercurials have also been found to be systemically toxic after absorption. As these compounds are corrosive to metal, they cannot be used satisfactorily in the

* Chemist, AMERICAN PHARMACEUTICAL ASSOCIATION laboratory.

† Available as Metaphen through Abbott Laboratories, North Chicago, Ill.

‡ Available as Merphenyl Chloride or Merphenyl Nitrate from Hamilton Laboratories, Asheville, N. C.

§ Available from Merck and Co., Rahway, N. J., or Mallinckrodt Chemical Works, St. Louis 7, Mo.

COMPOUNDS ADMITTED TO N. F. VIII

FIRST OF A SERIES ON DRUGS NEWLY ADMITTED TO THE NATIONAL FORMULARY

disinfection of surgical or dental instruments.

Because of these disadvantages of the inorganic mercury compounds, such as mercuric chloride and mercuric iodide, they have been replaced to a large extent by complex organic compounds of mercury.

The mechanism of action of organic derivatives has not been fully explained. The simplest theory is that, like the inorganic mercurials, they are effective through the release of ionic mercury. However, this theory is hard to accept since the organic mercurials are more powerful germicidal agents than the inorganic salts even though they are not as highly ionized as the inorganic salts.

Furthermore, the organic compounds of mercury have a specificity of action which is not to be expected from simple protein precipitation alone. How seriously this argument may be taken is questionable since mercuric chloride also has somewhat of a selective action against certain microorganisms.

In 1940 Fildes presented evidence that mercurials exert a bactericidal action in much the same way as arsenicals exert a treponemicidal action, namely, by combining with sulfhydryl groups of the bacterial cells and in this way interfering with cellular metabolism.[3] Probably this explains how organic mercurials, which have virtually no protein precipitant action, are extremely potent agents.

In general, the organic compounds of mercury are less irritant and less toxic than the older salts. The organic mercurials have a greater bacteriostatic activity by *in vitro* experiments, and have also a greater tissue penetrability than the inorganic mercury compounds.

For these reasons, nitromersol, phenylmercuric chloride, and phenylmercuric nitrate have been admitted to the eighth edition of the National Formulary.

Mercuric Cyanide

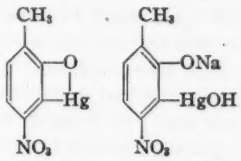
Among the inorganic mercurials, mercuric cyanide has been admitted to N. F. VIII. It is as active as mercuric chloride and is less irritating to tissue. With mercuric cyanide, protein precipitation is absent because of the nonionization of the compound by virtue of the complex molecule.

Mercuric cyanide is used locally as an antiseptic and can be applied to mucous membranes. It may also be used internally as a diuretic. In 1922 Blum and Schwab recommended this drug as a diuretic in cardiac, but not renal, disease. They suggested doses of 40 to 50 mg. by intravenous or intramuscular injection. However, they point out that mercuric cyanide should be used only as a last resort after other drugs have failed.[1] Mercuric cyanide has also been used as an antisyphilitic in the late stage of syphilis of the central nervous system, the heart, or liver where arsenicals are initially contraindicated.[4] From 1.5 to 2 cc. of a 1% solution may be used hypodermically without causing local irritation. A dose of 10 mg. daily for not more than twenty days has been suggested for intravenous or intramuscular injections.

In diphtheria and croup, mercuric cyanide is used in a 1:10,000 solution as a gargle, and, in fibrinous rhinitis, it is used on a tampon in a 1:2500 solution. Solutions of 1:4000 to 1:2000 may be used for application to the eye and mucous membranes.

Nitromersol

Nitromersol is the anhydride of 4-nitro-3-hydroxy-mercuri-*ortho* cresol (originally introduced as Metaphen). When nitromersol is dissolved in the presence of alkali, the anhydride ring opens forming the sodium salt, which is the form in which the drug is usually dispensed.



Anhydride Sodium Salt

Nitromersol is used as an antiseptic on the skin and mucous membranes. It may be injected, but its effectiveness parenterally has not been proved. It is claimed to be more germicidal than mercuric chloride when tested on cultures of *Staphylococcus aureus* and *Eberthella typhosa*. Because nitromersol has only a slight protein precipitating action, it is relatively nonirritating and nontoxic. White rats were found to tolerate doses of 6 mg. per Kg. when injected intravenously, and 30 mg. per Kg. when injected intramuscularly.[5]

In dental and surgical use, nitromersol, and also mercuric cyanide, is used as a disinfectant for instruments because it has no deleterious effect on

metal or rubber. However, like all cold disinfectants, these agents have serious limitations. It must be remembered also that they are not effective against bacterial spores.

A solution of arsphenamine in nitromersol, 1:1000, has been suggested for Vincent's infection, but there is no evidence as to its advantages over a simple glycerin solution.[5]

A monograph for nitromersol has been prepared and since nitromersol is most frequently used in an alkaline solution, a monograph has also been developed for such a solution, 1:500.

The alkaline solution of nitromersol, 1:500, may be diluted for specific uses. A 1 in 5000 to a 1 in 1000 solution has been employed for disinfecting instruments but no sporulating pathogenic organisms should be present if so used; 1 in 5000 and 1 in 1000 is used for application to the skin; and 1 in 10,000 to 1 in 5000 for ophthalmic and urethral irrigation.

Dilutions made from the 1:500 solutions are not very stable and precipitate quite rapidly upon exposure to the carbon dioxide of the air. Consequently all such dilutions should be prepared fresh just prior to use.

The nitromersol tincture, which is nitromersol dissolved in an alkaline mixture of acetone, water and alcohol, is also used as an antiseptic. It is used as a preoperative disinfectant in the dental area and as a general surgical antiseptic, probably being superior to the aqueous solution.

Phenylmercuric Compounds

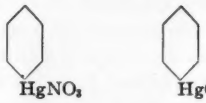
Phenylmercuric chloride and basic phenylmercuric nitrate were the first of the organic mercurials of their type found to possess effective bacteriostatic and bactericidal activity against certain pathogenic microorganisms. Evidence indicates that the germicidal activity is due to the phenylmercuric ion. In general, the phenylmercuric compounds are said to be highly dissociable in solutions, yielding the phenylmercuric ion.

Solubility is a limiting factor in the effectiveness of these compounds. Since phenylmercuric chloride is soluble in water only to the extent of 1 part in 20,000, it has been replaced to a great extent by the more soluble basic phenylmercuric nitrate, soluble 1 part in 1200.

Since the phenylmercuric ion is responsible for the germicidal activity of these compounds, it is necessary to consider its stability. The phenylmercuric ion, $(C_6H_5Hg)^+$, is more stable in acid than in alkaline solutions. Aqueous solutions buffered with inorganic or organic acids are relatively stable. Because buffered solutions of phenylmercuric salts are less irritating to tissue and more stable than unbuffered solutions, the former are preferable.

"The presence of buffered solutions of phenylmercuric salts does not interfere with the precipitin reaction of human serum, the action of the complement, the digestive action of pepsin and trypsin or the antigenic power of vaccine."[6]

A monograph has been prepared for phenylmercuric nitrate which is claimed to be a molecular compound of phenylmercuric nitrate and phenylmercuric hydroxide in equal amounts, for which structural formulas are given below. The



compound is used as an antiseptic for prophylactic and therapeutic disinfection of the skin, superficial abrasions, lacerations, wounds, and infections.

REFERENCES

1. "New and Nonofficial Remedies," American Medical Association, Chicago, 1944, pp. 135, 136.
2. Goodman, Louis, and Gilman, Alfred, "The Pharmacological Basis of Therapeutics," The Macmillan Company, New York, 1943, pp. 852–856.
3. McColloch, Ernest C., "Disinfection and Sterilization," Lea and Febiger, Philadelphia, 1936, pp. 299–312.
4. Goodman, Louis, and Gilman, Alfred, *ibid.*, p. 987.
5. "Accepted Dental Remedies," 8th Ed., American Dental Association, Chicago, 1942, pp. 156–161.
6. "New and Nonofficial Remedies," American Medical Association, Chicago, 1944, pp. 144–148.

ULCER PATIENTS NEED FOOD AT NIGHT TO NEUTRALIZE ACID

Patients with ulcer of the stomach need to be fed at night to neutralize the acid present which retards healing (*J. Am. Med. Assoc.*, 130: 258, 1946).

David J. Sandweiss, M.D., from Detroit, Major Marcus H. Sugarman and Captain Harold M. Podolsky, of the Medical Corps, A. U. S., and M. H. F. Friedman, Ph.D., of Philadelphia, studied gastric secretion in 38 normal persons and 29 ulcer patients at the Harper Hospital and the North End Community Fund Clinic, Detroit.

The authors conclude that although the ulcer patients have no greater volume of gastric juice at night than normal persons, the evidence indicates that they retain more of the juice and acid in their stomachs. Therefore, in order to prevent the acid from irritating the ulcer at night, feeding is essential.

The Hospital Pharmacist

EDITORIAL

INTERNSHIPS FOR PHARMACY GRADUATES

by LEO F. GODLEY

AMERICAN SOCIETY OF HOSPITAL PHARMACISTS

ALTHOUGH there has been a welcome post-war influx of students into our pharmacy colleges, the size of advanced classes remains pitifully small. Every one of the graduates receiving degrees this spring will be badly needed to fill persistent demands for professional personnel. Hospitals are not the least of those clamoring for pharmacists.

In some sections of the country, the full value of hospital pharmacy has not been realized either by the administrative bodies of the hospitals or by pharmacists or by the schools of pharmacy. It is hoped that the unusual opportunities for professional practice in hospital pharmacy will be made clear to students, so that they may carefully weigh its possibilities in choosing the type of practice in which to engage.

The graduate's first impulse, upon deciding to give hospital pharmacy a trial, might be to locate a small hospital that needs a pharmacist and there try to find immediately the great satisfaction that hospital pharmacy has been alleged to offer. It should be brought out at this point that a hospital pharmacy is also a fertile field in which to encourage and nurture the malignancy that continually threatens the foundation of pharmacy: inadequately trained personnel, inadequate equipment, and contentment with a minimum scope of professional service.

This has been demonstrated in too many hospitals and is often the kind of department that a prospective hospital pharmacist happens to see. This is the type of department that the American Society of Hospital Pharmacists with the help and cooperation of the American Hospital Association is trying to wipe out through the education of hospital pharmacists and hospital administrators.

Leading hospitals in several states have offered for the past decade a training period for hospital pharmacists. This period of instruction is called an "internship" and the student is called a "pharmacy intern." The internship usually lasts for a year, during which the intern is given comprehensive instruction and practice in hospital pharmacy. This includes professional poise, prescription preparation, bulk manufacturing, sterile solution and ampul manufacturing, purchasing, research and administration. In most cases the pharmaceutical intern receives, in addition to invaluable instruction, full maintenance (or its equivalent) and a small stipend.

It is hoped that interested graduates will apply for admission* to the staff of a well-operated hospital pharmacy for a training period of a year or until they feel competent to apply for one of the places that require the services of a well-qualified hospital pharmacist.

It has been proposed, and will probably be adopted, that the American Society of Hospital Pharmacists approve hospitals for pharmacy internships. Also it has been advanced for consideration by the Society that to qualify as a hospital pharmacist, the candidate must have successfully completed an approved internship or its equivalent. Research and study are constantly going on among groups and committees of the national body in order that a full list of qualifications of the hospital pharmacist might be standardized and legalized.

The fact that the leading and progressive colleges of pharmacy are including special hospital pharmacy courses in their curriculum is predicated upon the established necessity and import-

* Anyone interested in obtaining an internship appointment is invited to address Don E. Francke, chairman, American Society of Hospital Pharmacists, 1313 Ann St., Ann Arbor, Michigan.

ance of hospital pharmacy. This trend will do much toward simplifying the internship and leave more time for advanced study and research in this specialty. It is highly desirable that during the period of training the intern be able to take graduate courses in physiology and pharmacology. While at present the procedure is far from standardized, it is safe to say that until such standardization is accomplished the present internships offer the best approach to a career in hospital pharmacy.

PHARMACY LAW APPLICABLE TO PENNSYLVANIA HOSPITALS

Hospital pharmacies in Pennsylvania must be under the supervision of a licensed pharmacist and otherwise comply with the state pharmacy law, according to a formal opinion (No. 533) by the state's Department of Justice.

The ruling is considered to be particularly significant since the status of hospital pharmacy under pharmacy laws has been uncertain in many states.

In Pennsylvania, the attorney general stated, "hospitals come within the purview of the Pharmacy Law, unless exempted by other laws." The Law defines "pharmacy" as follows: "The term 'pharmacy,' when not otherwise limited, shall, for all the purposes of this act, be taken to mean a retail drugstore, or any place where drugs, medicine, or poisons are compounded, dispensed, prepared, or sold at retail; . ."

In considering the question of whether or not hospitals must also pay the permit fee of $2, the attorney general expressed the opinion "that the fee is a license fee and not a tax, and consequently the hospital cannot claim the benefit of any tax exemption law."

WHOLESALERS FINED $87,000, CLOSING ANTITRUST CASE

The government's four-year-old antitrust case against the National Wholesale Druggists' Association, 23 wholesale drug companies and 29 executives has ended with the imposition of fines aggregating $87,000. When the government dropped the case against all individual defendants, counsel for the wholesale druggists withdrew the corporate defendants' plea of not guilty and interposed a plea of *nolo contendere*. Thereupon fines were imposed upon all of the corporations and the case was closed.

TENTH U.S.P. SUPPLEMENT ISSUED; NEW QUINIDINE SOURCES OFFICIAL

The Tenth Sheet Supplement to U. S. P. XII has been issued due to new developments and improved supplies of some drugs. Copies may be obtained without charge from the U. S. P. Revision Committee, 4738 Kingsessing Ave., Philadelphia 43.

The interim revision authorizes new sources of quinidine sulfate, which has been in short supply. The alkaloid prepared from *Remijia pedunculata* Triana or from quinine becomes official, as well as that from the traditional cinchona sources.

Remijia barks were developed in South America as a commercial source of quinidine and quinine during the war. Quinidine sulfate U. S. P. produced synthetically from quinine is also now available.

Recent studies have shown that quinidine from natural sources contains a variable amount of dihydroquinidine. When obtained from cinchona bark the amount of dihydroquinidine present usually varies from 20% to 30%. When from Remijia bark, quinidine usually contains about 10% of dihydroquinidine. When pure crystalline quinidine is made synthetically it contains no dihydroquinidine.

Dihydroquinidine has considerably more clinical activity than quinidine. However, variations in the amount of dihydroquinidine present in quinidine, from the different sources which have been made official, are considered clinically insignificant.

Among other changes included in the new U. S. P. Sheet Supplement is the return to prewar formulas of such preparations as Camphorated Opium Tincture, Compound Gentian Tincture and Wild Cherry Syrup.

PHARMACIST RECEIVES SELECTIVE SERVICE MEDAL AT WHITE HOUSE

A. PH. A. member John H. Hoagland of New Brunswick, N. J., received a medal from President Truman at White House ceremonies honoring the wartime service of volunteer members of the Selective Service System. Mr. Hoagland was one of 54 persons thus honored who had been selected by lot from among those serving five years or more.

Many other pharmacists, through local ceremonies, received the medal, which was awarded to some 100,000 Selective Service workers throughout the country who had participated without compensation for two or more years.

BRIGGS TO DIRECT V. A. PHARMACY

DEAN OF GEORGE WASHINGTON UNIVERSITY PHARMACY SCHOOL APPOINTED CHIEF PHARMACIST OF VETERANS ADMINISTRATION

DEAN W. PAUL BRIGGS, faculty member of the George Washington University School of Pharmacy since 1927, has been appointed chief pharmacist of the Veterans' Administration.

The post is a newly created one authorized by legislation establishing a Department of Medicine and Surgery in the Veterans' Administration. The new law also prescribes qualifications for appointment of pharmacists in the Veterans Administration.

Mr. Briggs indicated that he had not had the opportunity to study fully his new responsibilities. He emphasized, however, that he had had full assurance from Maj. Gen. Paul R. Hawley, Surgeon General of the Veterans' Administration, Department of Medicine and Surgery, and from Col. Hugo Mella, chief of the Professional Division of the Department, that he would have their complete support in efforts to develop pharmaceutical services in Veterans' hospitals.

At a very early date, Mr. Briggs will visit some Veterans' Administration hospitals to obtain firsthand information on present services, looking toward prompt action, if indicated, to improve professional facilities and personnel. Later he plans an extensive survey of all Veterans' facilities to discuss pharmacy problems with hospital managers and pharmacists.

Advancement in the salary scale for Veterans' Administration pharmacists to help assure fully competent personnel will be one of his first objectives, Mr. Briggs stated. He indicated that he did not contemplate any action with respect to presently engaged pharmacists who had qualified under previous standards if their professional services are satisfactory. He particularly emphasized this last point, indicating that while current requirements demand a B.S. degree as a basic qualification for appointment, he was confident that many men with lower collegiate qualifications were rendering a fine service, and these men should be retained.

Mr. Briggs said that he is interested in learning the number of pharmacists in Veterans' hospitals who are members of the AMERICAN PHARMACEUTICAL ASSOCIATION and of their state pharmaceutical associations. He is also interested in the professional equipment and library facilities available. He said that he assumed at least one licensed pharmacist was attached to each Veterans' Administration hospital, and that full active registration would be mandatory for all Veterans' Administration pharmacists.

Some vacancies for pharmacists now exist, he pointed out, and efforts will be directed toward procuring high-type professional men for these posts. With the new professional standards and the possibility of a higher salary range, he felt sure that the opportunities would attract the men needed.

Qualified pharmacists who are interested in such a position should contact the Veterans' Administration, Department of Medicine and Surgery, Washington 25, D. C.

Dean Briggs brings to the post of chief pharmacist wide experience in pharmacy and administrative work. He has been a licensed pharmacist since 1924 and holds the B.S. degree from George Washington University and the M.S. degree from the University of Maryland.

W. PAUL BRIGGS

Mr. Briggs is treasurer of the U. S. Pharmacopœial Convention.

A member of the AMERICAN PHARMACEUTICAL ASSOCIATION for many years, he is a past chairman of the Practical Pharmacy Section and has presented a number of papers and articles at various pharmaceutical meetings. For two decades he has been a member of the District of Columbia Pharmaceutical Association, serving as secretary for some years and as a member of the executive committee.

During the war Mr. Briggs served in the Navy, being released to inactive duty on December 15, 1945, in the rank of Commander. For two and a half years he was attached to the Bureau of Medicine and Surgery. He was officer-in-charge of recruiting enlisted personnel in the Medical Department and the development and administration of the educational and training program for the Hospital Corps. Comdr. Briggs later organized the Hospital Corps WAVE recruiting, selection and training program.

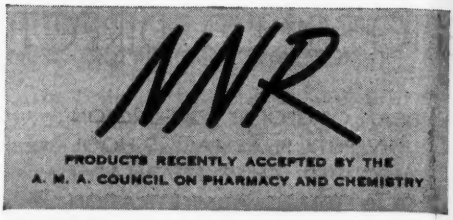
During the last year before his release, he was attached to the Naval Medical Supply Depot in Brooklyn. His work there included the development, jointly with Army officers, of the overall administrative plan for the now-functioning Army-Navy Medical Procurement Agency. During the last six months before V-J Day, Comdr. Briggs was assigned the responsibility of obtaining critically needed medical supplies.

For his servies in developing the educational and training program in the Hospital Corps he was awarded the Secretary of the Navy's Citation. In September of last year he returned to George Washington University as dean of the School of Pharmacy.

Although expressing awareness of the problems of his assignment as chief pharmacist of the Veterans' Administration, Mr. Briggs is certain that, with the support he has been assured, real progress can be made in improving pharmaceutical services and the status of Veterans' Administration pharmacists.

A.S.H.P. ELECTS VICE-CHAIRMAN

Mrs. Anna D. Thiel, chief pharmacist of Jackson Hospital in Miami, Fla., has been named vice-chairman of the American Society of Hospital Pharmacists by the organization's executive committee. Mrs. Thiel was chosen to fill the unexpired term of Miss Hazel E. Landeen, who resigned during 1945.



Council descriptions of drug products are published regularly in This Journal as they are accepted. Rules upon which the Council bases its action appeared in the November, 1945, issue (6:329, 1945) and may be secured in pamphlet form upon request to the Secretary, Council on Pharmacy and Chemistry, American Medical Association, 535 N. Dearborn St., Chicago 10.

CONTRACEPTIVE JELLIES AND CREAMS (See New and Nonofficial Remedies, 1945, p. 355).

The following article has now been accepted:

EATON LABORATORIES, INC., NORWICH, N. Y.

Lorophyn Jelly: A water soluble jelly formed from tragacanth and purified Irish moss, having a *p*H of 7.5, prepared from the formula:

	Per Cent
Phenylmercuric acetate	0.05
Polyethylene glycol of mono iso octyl phenyl ether	0.3
Gum tragacanth	1.8
Purified Irish moss	2.0
Glycerin	8.0
Methyl *p*-hydroxy benzoate	0.05
Sodium borate U. S. P.	3.0
Water	84.8

Actions and Uses.—See article Contraceptive Jellies and Creams.

Dosage.—5 cc.

SYRINGE APPLICATORS FOR CONTRACEPTIVE JELLIES AND CREAMS (See New and Nonofficial Remedies, 1945, p. 357).

The following article has now been accepted:

EATON LABORATORIES, INC., NORWICH, N. Y.

Lorophyn Jelly Applicator: A transparent plastic syringe threaded at the blunt, intravaginal end, to screw onto the tubes of jelly, to permit filling by compression of the tube. The full capacity is 5 cc., the recommended dose.

HEXAVITAMIN (See *J. Am. Med. Assoc.*, Aug. 11, 1945, p. 1099).

The following dosage form has been accepted:

THE WM. S. MERRELL CO., CINCINNATI

Tablets Hexavitamin: Each tablet contains 2500 U. S. P. units of vitamin A, 200 U. S. P. units of vitamin D, 1 mg. of thiamine hydrochloride, 1.5 mg. of riboflavin, 37 mg. of ascorbic acid and 10 mg. of nicotinamide.

DIETHYLSTILBESTROL (See New and Nonofficial Remedies, 1945, p. 428).

The following dosage forms have been accepted:

BRISTOL LABORATORIES, SYRACUSE, NEW YORK

Diethylstilbestrol (in Sesame Oil): 0.2 mg. per cc.; 0.5 mg. per cc.; 1.0 mg. per cc.; 2.0 mg. per cc. and 5.0 mg. per cc.: 1 cc. ampuls and 30 cc. vials. Preserved with 0.005 Gm. chlorobutanol.

CONTRACEPTIVE JELLIES AND CREAMS (See New and Nonofficial Remedies, 1945, p. 355).

The following articles have been accepted:

DUREX PRODUCTS, INC., NEW YORK

Lactikol Creme: A water dispersible nonfatty stearic acid and glyceryl monostearate cream, having a *p*H of 4.9, prepared from the formula:

	Per Cent
Stearic acid	15.00
Glyceryl monostearate	7.50
Glycerin	8.00
Glyceryl monoricinoleate	1.50
Sodium lauryl sulfate	0.50
Lactic acid	0.50
Perfume	0.07
Water sufficient to make	100.00

Actions and Uses.—(See article Contraceptive Jellies and Creams.)

Dosage.—5 cc.

Lactikol Jelly: A water soluble jelly formed from tragacanth, karaya and acacia, having a *p*H of 4.15, prepared from the formula:

	Per Cent
Tragacanth	2.70
Karaya	1.00
Acacia	1.00
Lactic acid	1.50
Glycerin	16.00
Glyceryl monoricinoleate	1.00
Sodium lauryl sulfate	0.20
Butyl ester of parahydroxy benzoic acid	0.02
Oxyquinolin sulfate	0.05
Perfume	0.04
Water sufficient to make	100.00

Actions and Uses.—(See article Contraceptive Jellies and Creams.)

Dosage.—5 cc.

SYRINGE APPLICATORS FOR CONTRACEPTIVE JELLIES AND CREAMS (See New and Nonofficial Remedies, 1945, p. 357).

The following articles have been accepted:

DUREX PRODUCTS, INC., NEW YORK

Lactikol Plunger Applicator: A transparent plastic tube threaded at the blunt intravaginal end to screw onto the tubes of Lactikol Creme and Jelly to permit filling by compression of the tube. The full capacity is 5 cc., the recommended dose.

Lactikol Metri-Dose Applicator: A transparent glass tube graduated to permit delivery of from 5 to 8 cc., slightly constricted at the intravaginal end to permit filling, and fitted at the distal end with a rubber compression bulb with central wire spring device to permit adjustment of the volume of jelly or cream to be delivered.

THIAMINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1945, p. 610).

The following additional dosage form has been accepted:

SCHIEFFELIN & CO., NEW YORK

Tablets Thiamine Hydrochloride: 3 mg.

ASCORBIC ACID (See New and Nonofficial Remedies, 1945, p. 622).

The following additional dosage form has been accepted:

SCHIEFFELIN & CO., NEW YORK

Tablets Ascorbic Acid: 100 mg.

HEXESTROL (See New and Nonofficial Remedies, 1945, p. 435).

The following dosage form has been accepted:

ORTHO PRODUCTS, INC., LINDEN, N. J.

Tablets Hexestrol: 1 mg. and 3 mg.

CONTRACEPTIVE JELLIES AND CREAMS (See New and Nonofficial Remedies, 1945, p. 355).

The following article has now been accepted:

HOLLAND-RANTOS CO., INC., NEW YORK

U. S. trademark 213,756.

Koromex Jelly: A water soluble jelly formed from tragacanth and gum acacia having a *p*H of 4.6, prepared from the formula:

	Per Cent
Boric acid	2.0
Oxyquinoline benzoate	0.02
Phenylmercuric acetate	0.02
Glycerin	10.0
Gum acacia	0.6
Tragacanth	2.5
Perfume	0.015
Butyl parahydroxybenzoate as preservative	0.02
Water	100

Actions and Uses.—See article Contraceptive Jellies and Creams.

Dosage.—5 cc.

SYRINGE APPLICATORS FOR CONTRACEPTIVE JELLIES AND CREAMS (See New and Nonofficial Remedies, 1945, p. 357).

The following article has been accepted:

HOLLAND-RANTOS CO., INC., NEW YORK

Koromex Vaginal Applicator: A transparent plastic tube threaded at the blunt, intravaginal end, to screw onto tubes of Koromex Jelly to permit filling by compression of the tube. The full capacity is 5 cc., the recommended dose.

ACETARSONE (See New and Nonofficial Remedies, 1945, p. 235).

The following dosage form has been accepted:

ALLEN LABORATORIES, INC., PALMER, MASS.

Allen Brand Tampon with Acetarsone (Stovarsol): A lightly compressed stitched tampon of absorbent cotton, coated with 0.1 Gm. of powdered acetarsone, to which is attached a tablet consisting of acetarsone 32 mg. in a tablet base composed of lactose, dextrose, boric acid and starch with a small quantity of sodium bicarbonate and tartaric acid to aid disintegration.

Actions and Uses.—(See article on Acetarsone.)

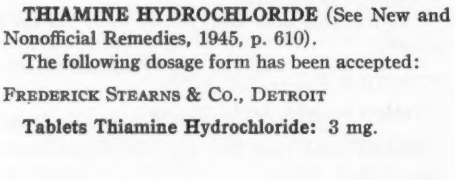
Dosage.—Intravaginally, one tampon tablet every other day or daily, followed by a mildly acid douche after a third treatment or after a week's treatment, has been reported to give satisfactory results.

THIAMINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1945, p. 610).

The following dosage form has been accepted:

FREDERICK STEARNS & CO., DETROIT

Tablets Thiamine Hydrochloride: 3 mg.



FROM THE SECRETARY'S JANUARY DIARY

—2nd—

The long week end and New Year's holiday were good for some, and not so good for others. The desire to start the New Year with a clean slate is difficult to achieve, for there is much still undone from the year that closed with the calendar for 1945. At any rate, 1946 starts off at A. PH. A. headquarters with the staff fully realizing that much is expected of it.

—3rd—

All the day at routine tasks. In the evening at the Hay-Adams discussing the trend of affairs in professions engaged in providing medical care with a congenial group representing producers as well as consumers of medical services, at dinner and far into the night.

—4th—

A great day for Gen. Bradley and Gen. Hawley of the Veterans' Administration, for the President signed the bill to reorganize the Medical Department of the Veterans' Administration. Incidentally also a great day for pharmacy because the Congress of the United States and the President have now declared that graduation from a four-year course in pharmacy shall be the minimum requirement for admission to the position of pharmacist in the Veterans' Administration.

During the day came Dean Briggs of George Washington University, recently returned from Navy service with the rank of Commander, discussing many things including the education of pharmacists for their new responsibilities. A part of the afternoon given over to a review of a lengthy dissertation of the place of women in various professions, including pharmacy, with Mrs. Zapoleon of the Women's Bureau of the Department of Labor.

After dinner and late into the night talking to that inanimate object, commonly known as Dictaphone, which records what is said with unerring accuracy, much to the delight of the secretaries who sometimes get tired of being told that what has been transcribed by them is not what was dictated.

—5th—

On this "off day" working with Dr. Powers and the staff on the final proofs of the Proceedings issue of the JOURNAL which contains the reports of officers and committees. Late in the afternoon to Red Bank for some rest over the week end.

—6th—

A part of this Sunday given over to the meeting of the Board of Trustees of the New Jersey Pharmaceutical Association with many an intricate problem to be solved.

—7th—

Early in the morning to Newark, N. J., for a necessary visit to the dentist who practices his profession in the manner one likes to record in the books, and then to call on old friends at the Maltbie Chemical Company, not very far away. Here J. H. Foy, board chairman, though past the three score and ten, functions with customary skill and acumen, ably supported by President Fosbinder and numerous associates including W. J. Burke and P. J. Blakeslee.

Then on to New York and telephoned Bob Swain who is just recovering from a siege of illness. Later to meet Hugo Schaefer at the Chemists Club to discuss A. PH. A. finances, and then to the Advertising Club where an attentive group of Whelan pharmacists seemed eager to absorb the latest developments in pharmaceutical administration and procedures.

—8th—

To Trenton, N. J., for the monthly meeting of the State Board of Health and then by rail to Washington where it was still possible to catch up with the day's mail by way of the dictaphone.

—9th—

An almost continuous session of telephone conversations with the Army, the Public Health Service, the Navy, the Veterans' Administration, and some Congressmen involving a wide variety of topics

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ranging from the proper collection and distribution of whole blood and blood plasma, to a better "break" for pharmacists in the Army, and our thoughts traveled back to the days around 1916–19 when as secretary of the National Pharmaceutical Service Association we worked with J. C. Peacock, treasurer, and the late George M. Beringer, president, for the establishment of a Pharmacy Corps in the Army. World War I was the principal stimulating factor for this activity. It is curious how some present-day writers on pharmacy pass lightly over the record.

To dinner at the Washington Hotel with George Bender who is writing some pamphlets for the Department of Commerce and needs statistical data of which we have a few samples amassed for the New Jersey Board of Pharmacy and for the Committee on the Cost of Medical Care.

—10th—

After the morning routine, a pleasant luncheon meeting at the Watergate with Lt. Col. Nelson and Maj. Wilson of the Pharmacy Corps. Later to confer with Stephens Rippey and John McPherrin of *Drug Topics* and *American Druggist*, respectively; also a conference with Captain Deibert, just out of the Army, who has a background of public health and legal experience that may prove valuable for work we need to have done at the headquarters building.

—11th—

A morning appointment at the Pentagon with Gen. Bliss, Assistant Surgeon General of the Army, followed by a quick lunch and conferences on the present status of streptomycin, alleged shortages of penicillin, and some discussion of the activities of the "Friends of Historical Pharmacy" with Dr. Deno who is here to catch up on some National Formulary work. Later to dinner with Dr. and Mrs. Justin Powers and Dr. Deno, enjoying every minute in such good company.

—13th—

Following the weekly program of the Salt Lake City Choir which comes over WABC there came a program headed International Call with the theme, "an apple a day." It turned out to be a most interesting recital of the average citizen's problem to obtain adequate medical care, and it was well done because it gave both sides of the picture dramatically and impartially. At dusk waiting for a half hour in the bitter cold for the train to Washington which arrived late, as usual.

—14th—

And now came the letter from President Mitchell of the U. S. Civil Service Commission ending lengthy correspondence with a complete reversal of the Commission's earlier position that formal training was not a necessary qualification for pharmacists in government service. Reversal of the Commission's untenable position was greatly aided by Congressional action providing that pharmacists entering the service of the Veterans' Administration must be four-year course graduates.

In the afternoon attending a special meeting of

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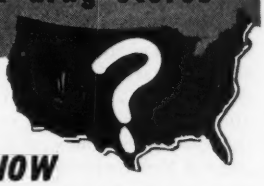

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representatives of various organizations holding membership in the American Council on Education for the purpose of discussing the program of the annual meeting of the Council to be held in Chicago in May. To dinner at the Washington Hotel Roof with Edward B. Carter, old-time friend and executive of the Abbott Laboratories, with profitable discussion of problems of mutual interest and then another session with the dictaphone before embarking on the 10:45 p. m. train bound for Chapel Hill, N. C.

—15th—

Arriving at Greensboro at 7 a. m. in time to vacate the sleeper and pass on to the cars which land at Durham where active and efficient State Association Secretary Wm. J. Smith and most capable Secretary I. T. Reamer of the American Society of Hospital Pharmacists met us. With Mr. Smith at the wheel of the family car and in the pleasant company of Mrs. Smith the trip to Chapel Hill seemed short indeed. Now a visit to the College of Pharmacy of the University of North Carolina including stops at the offices of Prof. Burlage, the North Carolina Pharmaceutical Association and the Board of Pharmacy all located in the College building. Luncheon with the N. C. Ph. A. Executive Committee at the Carolina Inn which offered the very enjoyable opportunity of listening and talking to these earnest men who guide the destinies of pharmacy in North Carolina. Fortunate indeed are North Carolina pharmacists in their selection of executive personnel.

Then to Durham by automobile with Assistant Dean Jacobs and Board of Pharmacy Secretary McAllister where a visit to the Duke University Medical Center proved most educational and enjoyable. A brief period spent with Dean Davison of the College of Medicine whose dynamic leadership has been a boon to medical service in this part of the South. There followed an interview with representatives of the press who did an excellent job in broadcasting both preliminary and supplementary notices of the dinner given by the North Carolina Pharmaceutical Association to the faculty and students of the College of Pharmacy that night.

On the return trip to Chapel Hill glad to see Dean Beard at his home where he was recovering from recent illness, and found him, as ever, enthusiastic about the prospects of pharmacy, although somewhat pessimistic about what is happening in some places. He need not be pessimistic about pharmacy in North Carolina for it seems to be in excellent hands and benefiting from his long-range planning. At dinner that evening in the Carolina Inn saw one of the finest groups of pharmacy students it has been our pleasure to meet in a long time and they listened attentively to a message about the direction in which pharmacy is headed in these United States. Then for a pleasant automobile trip to Raleigh with President-Elect Daniels. Catching the Silver Meteor for Washington at 11:50 p. m., considering the day well spent but with some misgivings about having to alight in Washington at 6:05 a. m.

—16th—

For five long years never traveled on a train arriving in any city on time in the morning. But today, with the train due to arrive at 6:05 a. m. it was on time and so there was no alternative but to tumble out of bed at 5:30 a. m. and reached the office in time to open the place for the earliest of early birds. After catching up with the accumulated mail, a staff luncheon to discuss the North Carolina trip, and it was a pleasure to report what we had seen and heard and how well pharmacy seems to be progressing in that progressive state, thanks to the fine cooperation of leaders in the State Association, the College of Pharmacy and the Board of Pharmacy.

—18th—

After an hour or two at the desk, a quick trip to Baltimore for a meeting with Beal, Dunning, Swain and Little, to discuss important A. PH. A. business, and then to the annual meeting of the American Council on Pharmaceutical Education at the U. of Maryland College of Pharmacy. A busy afternoon discussing current educational problems and transacting the business of the Council, following which there was a good dinner at the Lord Baltimore Hotel, and then talking late and long with Costello and Christensen about plans for the annual convention of the A. PH. A., A. A. C. P. and N. A. B. P.

—19th—

All of the morning at the University of Maryland College of Pharmacy discussing standards of pharmaceutical education and the trend of the times and what to do about it all. Then for a brief session with the auditors of A. PH. A. accounts and continuation of discussions bearing on the problems of pharmacy with Little, Christensen, Costello and DuMez over the lunch table at the Lord Baltimore Hotel. In the middle of the afternoon returning to Washington with time enough left to spend several hours at the desk.

—22nd—

All day at the desk working on pamphlets and reports to complete various assignments from a variety of sources. Also discussions with the staff and others on necessary changes in our equipment

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—23rd—

In the middle of the morning came Maj. Einbeck, Dr. DuMez and George Frates for conferences on the Army situation with respect to the threatened use of the Pharmacy Corps for commissioning non-pharmacists. There followed a visit to Congressman Durham, who pressed the buttons which brought responses from responsible sources, and then to the Pentagon for a conference with Gen. Bliss of the Surgeon General's office, and Gen. Paul of Gen. Eisenhower's staff. It looks as if the plot to sabotage the Pharmacy Corps may yet be unsuccessful. At dinner with Roy Koch at the Willard exchanging views on present policies for controlling streptomycin.

—24th—

An all-day session with Dr. B. V. Christensen on Council activities and convention programs. At lunch at the Statler with Drs. Christensen and Newcomb reviewing problems before the American Foundation for Pharmaceutical Education, and the part which the A. PH. A. can play in their solution.

—27th—

On the way back to Washington from New Jersey stopped off to attend the annual meeting of the Joint Committee on Professional Relations of the Medical Society of New Jersey and the New Jersey Pharmaceutical Association. It is a joy to note the lasting friendly relation which has been worked up between these organizations over a period of ten years. Not only has this joint group produced the New Jersey Formulary, now in its fourth edition, but it has cemented ties of friendship and mutual cooperation between the two professions in New Jersey which are rare indeed in the annals of medicine and pharmacy.

Thanks for this happy relationship must go in large measure to Dr. Chester I. Ulmer of Gibbstown, N. J., who first became acquainted with pharmacy as an apprentice with the late A. PH. A. President L. L. Walton of Williamsport, Pa. A new development emanating from this group is the endorsement of a proposed New Jersey Formulary Research Foundation at Rutgers University, with the initial contribution of $1000 being split between the Medical Society and the Pharmaceutical Association. This is real cooperation. Glad to relinquish the editorship of the New Jersey Formulary to Tom Rowe, at the New Jersey College of Pharmacy.

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